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COMPUTER EXPRESS

BRITAIN'S BIGGEST SELLING COMPUTER WEEKLY

AMIGA

- Viva multimedia
- Puzzle out Plotting
- Quick shortcuts

ST

- Deluxe Paint at last
- Colour Calamus
- Harley biking game

PC

- Teletext on screen
- The ultimate laptop?
- Copying files faster

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SPECTRUM•SAM•PD

BARGAINS!
28 value-packed pages in
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The best of the Amiga Animation Festival

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Computer ends Grace Darling's heroic era

A computer is to replace the lighthouse at Longstone Lighthouse in Northumberland - home of Grace Darling's famous and heroic rescue of shipwrecked sea-givers over 150 years ago.

At the end of next month the current keepers Gordon Medlicott and Ken Rowley will be replaced by an automatic system which will control the lights. It will be able to detect the weather and react accordingly to 1500 the power of the lighthouse.

Grace Darling's rescue of the shipwrecked sea-givers was a heroic deed. The lighthouse was built in 1806. The story has attracted visitors of children ever since.

Gordon Medlicott said: "There can be no Grace Darling after September."

Medlicott cannot now set to the rescue and they cannot make those human decisions to risk danger which meant the difference of



• Grace Darling: no computer heroism.

life and death to those survivors Grace and her father rescued against all the odds.

He said technology had made the coastguard a safer place but added: "No technology could substitute for what they did that day." While working on a distant lighthouse Medlicott saved a drowning man for which he was given a bravery award.

Atari version joins Amiga and PC

DELUXE PAINT
OUT ON THE ST

Deluxe Paint, the hugely popular paint, animation and printing package is finally available for the ST.

A program of the same name has been available for the Amiga and PC for some time and is held in high esteem by owners of those machines. Indeed, Commodore is offering the program to new Amiga owners.

Deluxe Paint ST was not written by the team which produced the Amiga version, but publisher Electronic Arts says it's just as good.

The software includes 999 animation buffers, each one being able to hold 999 frames. It can read Amiga IFX format files as well as all recognised ST graphics formats. Abrushes which give colour mixing are included, as are proportional fonts and full font editing, halftone and colour poster printing, and real time magnification on all tools are also available to the user.

Deluxe Paint will run in 512K of memory, and for STX owners there is an extended palette.



• Deluxe Paint: on the ST at last.

Electronic Arts claims that the ST package will rival "some of the best selling and most highly regarded paint programs on the Amiga, Deluxe Paint II."

Electronic Arts will be offering the program at an introductory price of £49.99 on its release in late September. This is £10 cheaper than the full £59.99 price which comes into effect on December 1.

For more information, contact Electronic Arts on 0753 49442. ■

• Watch out for the chance to win a copy of Deluxe Paint, coming soon.



• Populous: Populus follow up.

Hey Bullfrog

Fans of Bullfrog's perplexing strategy game Populous are seen to be treated to the follow-up title, Powermancer.

It's out on the ST and Amiga in about six weeks time and has already been hailed as a winner by those lucky enough to see preview copies. Powermancer takes the player to a living world where each individual has an occupation, a home and a level of intelligence. It's your job to conquer new territories and generally be horrible to the people already living there.

It's all drawn in 3D vector graphics à la Populous, there are 250 territories to conquer through bribery, corruption and diplomacy. It's published by Electronic Arts and will cost £29.99. ■

Highly defensive TV

High Definition Television is to receive funding from the United States Defense Department because it is seen as being of their national interest. Costs for the \$1 million project will be shared with American firms, Zenith.

Zenith sees HDTV as being the standard for computer monitors, workstations and commercial television. ■

Russians abandon guns for Spectrums

A factory which once churned out military hardware for the Soviet armed forces has been converted into a computer workshop.

The plant in Leningrad, Russia, will now be making

Spectrum-compatible machines for Eastern schools.

The project has been taken on by a number of companies working under the banner Arsenalschule.

The machines are unique

by Soviet standards because they are relatively affordable.

"Our customers have a limited supply of money and cannot afford to buy PCs," said Moscow representative Dmitry Potapov. "Our computers, which

come with educational software, are a good alternative. Sales are brisk and demand is high," he added.

The Z80-based 8-bit machines cost about £160 and will be sold to schools. ■

Secret code systems banned from export but fall into Iraqi hands

BRITISH COMPUTER SYSTEM SHIELDS IRAQ'S SECRETS

British-made computer equipment has fallen into the hands of the Saddam Hussein's regime and is being used to protect high-level Iraqi military communications.

As a result, the UN forces will now find it virtually impossible to use electronic spying techniques to anticipate Iraqi movements during the Gulf crisis. Encoded messages produced by the system would take NATO's most powerful computers a lifetime to decipher.

Brian leads the field in the application of computers to the coding of messages, and has done so since the Second World War. The secret techniques employed are publicly pointed.

Quite how Iraq obtained the equipment remains a mystery, and the nature of the device itself is shrouded in secrecy.

Iraq's possession of the equipment would only be discovered by chance.

Robert Matthews of The Sunday Correspondent reported that an unlabelled photograph, taken months ago, showed Iraq army officers and the

encoder shown clearly in the background.

All exports of encryption technology must be passed by the Government's Communications Headquarters based in Cheltenham, and it seems highly unlikely that the Iraqi acquisition was officially sanctioned.

A GCHQ spokesman told Express: "We do not comment on anything of an operational nature. Operational in this sense is defined as classified."

Such a sophisticated encoder could be as small as a microprocessor and would be easy to smuggle through customs. Iraq diplomats may have used their privileges to export the equipment without official sanction, or an Iraqi 'front' company could have been registered with a British address and used to acquire the technology.

Alternatively, sophisticated software could have been transmitted via modems to Iraq over the standard telephone network - PKZIP, an encoding program banned from export by the American government because freely available as shareware by this route.

Mike Jones, a technical representative from Camtech, a British company that specialises in encryption techniques, told Express: "Modern encoding devices come in both hardware or software form and can be used to code and decode voice and data transmissions. Data sent from one computer to another can be encrypted during transmission."

The encoder is thought to work by converting the written or spoken word into a digital signal. That signal is combined with a 'keystream' which comprises a series of numbers keyed in by the operator. Because the numbers are randomly introduced, it is virtually impossible for a third party to crack the code.

This process is further complicated by the fact that the coded messages are then looped back on themselves to be used as their own keystream, forming yet another layer of code. ■



• Saddam Hussein: keeping his communications secret by using British computers.

America bans export of anti-hacking equipment

The US National Security Agency (NSA) recently banned the sale of sophisticated anti-hacking equipment because its export would affect their own spying activities.

The NSA is known to keep tabs on communism, Iraq, and personal movements by hacking into other countries' signals. Like the Iraq-held equipment, the system encodes telephone communication signals using massive numbers so that the NSA computers would be kept so busy decrypting data that any recovered would already be out of date.

Variations on Enigma

Britain has had a long, and successful history of its encryption-decryption techniques. GCHQ itself is one of the largest and most complex spying stations in Europe.

During World War II, the code and cipher school at Bletchley Park was set up to break the German Enigma codes. Among the scientists who worked there

were Stuart (later knighted) Milner-Barry and the legendary Alan Turing.

The team, on what was known as Project Ultra, worked day and night intercepting and analysing German communications until they cracked the code. Winston Churchill always maintained that the success of Ultra was instrumental in the winning the war.

Turing is still widely quoted in the computing and encryption-decryption, at the age of 24 he published a paper which mapped out the theoretical basis of computing. His work on Project Ultra was carried out in his early thirties. Success could not save him from a tragically early death in 1952 at the age of 42.



Picture the scene

The Edinburgh Festival played host once again last week to the annual Anima Animation Festival - with an A3000 up for grabs to the best work.

In all there were 11 prize-winning animations but the two computer went to Eugene Minkov with his Main Video animation (pictured left). That featured smart imagery of a single desktop and imaginative camera work over mundane articles such as a Coca-Cola can, alarm clock and framed photograph.

It was all generated on an Amiga using Turbo Silver and recorded in five second sections onto a VHS recorder using a modulator.

• For a report on the animation festival turn to page 66.



• Top quality colour, at a price.

Millions of colours

Sublimation dye printers can now offer superb quality 18,000,000-colour images from CAD drawings with new PC-based software.

Spring's new Imageprint can print any AutoCAD image, and combine several onto one sheet. Combined with Mitsubishi printers it can be used on a PC, freeing the workstation.

Prices begin at £5,000. Further information on 0707 276608, or

Shops lobby for £1 increase in cassette prices

GAMES BUYERS FACE BUDGET PRICE RISES

Speculation is growing that a number of top games software publishers are considering a £1 price hike for their budget games.

At present most budget games cost £2.99. However some publishers, distributors and dealers feel this price does not leave enough room for worthwhile profits.

At present the debate is occupying the minds of senior business people in the software trade - most budgeters have yet to come to a decision.

Last week though the National Association of Computer Retailers called for a new price point of £3.99. The dealers say they are not making enough money from low cost software. This follows the liquidation of a number of software retailers during a poor summer. Dealers are also blaming inflation rates and the new business tax.

Chairman Vic Parnell told Express: "It's unfair in this financial climate. Budget games make up about 80 per cent of our business but we're not really making any money from them. That's no good for games players. If we're not making money we might as well give up and then there will be nowhere to buy software. This is in the interests of consumers and those of us in the trade."

Not surprisingly software publishers are not keen to commit themselves yet although it is understood that a few major players will be making announcements of



* Budget scene: cheap software prices going up?

price increases in the near future.

At Kixx - US Gold's label - Roger Swindells said no action would be taken in a response to the dealer requests. He said that any decision would be "for business". "We'll be making announcements at the lecture show and until then we've no comment to make," he said.

At Encore, boss Steve Wilcox said he would be discussing the matter with trade partners and "looking carefully at the situation".

Mastertronic's budget product manager Andrew Wright commented: "I'd like to see a new price but we'll have to wait

and see what our competitors are doing. We also have to decide whether or not the consumer will tolerate such a price rise." He said any hike would not affect old games which would stay at £2.99. Some are still priced at £1.99.

Carl's Tony Haggard and CodeMasters' Mike Clarke both felt the £2.99 price was fair to everyone. Nevertheless, trade sources insist that prices will be forced up before Christmas.

But any changes will not be a concerted industry wide effort. It is illegal for any business associations to fix prices. ■



* This intriguing device has them all hopping around in the land of Macintosh desktop publishing. It's a combination of a hand-held scanner and a character recognition device and is called the Typist.

Essentially, all the text you scan is chucked straight through the keyboard buffer and the result can then be edited on screen. Scanning text in the past has been a cumbersome experience since the computer always sees it as an image rather than as text.

It's being sold by retail chain Computers Unlimited which will be 'making a big splash' when it arrives in two weeks time. The price has been fixed yet. Call 081-200 8282. ■

16-bits budget for success

When it comes to the ST, PC and Amiga, budget games have yet to fully assert themselves. Still, Digital Integration will this week launch three games for less than a fiver.

Tamagotchi from Sibirica is a violent hack 'n' slash affair. Fast Lane is, hardly surprisingly, about fast cars and Finally On Safari from Infogrames involves taking photographs of big game in Kenya.

All three were low price games 18-months ago but now they are £4.99 under the Action Software label. ■



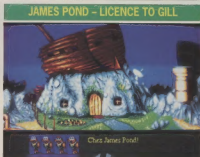
• 486 power, if you can afford it.

Power with the price

Elonex has released an extremely powerful EISA-based 486 PC. Priced at £4,245, the 25MHz computer offers EMBs of memory.

It is suited either as a network server or high-power graphics workstation. The EISA system allows ordinary PC cards to be used alongside the new fast 32-bit devices.

Enxon is on 081 452 4444. ■



* He's fearless, he's clever, he's eco-friendly and he's a fish with a mission. All sorts of missions to face, so long as they're ecologically sound, and don't involve murdering innocent.

He, his brief only includes retrieving radioactive canisters and preventing oil slicks from harming endangered species. What fun.

James Pond - Underwater Agent comes from Millennium on the ST and Amiga. His mission is to protect lovely fishy things from nasty pollution. Had to happen sometime - an ecologically friendly shoot-'em-up. At least this comes with "brilliant graphics, an amazing 12 levels of play and smooth parallax scrolling". It's out at the end of October for £24.99. ■



* CD-ROM goes portable with a new, battery-powered laptop-compatible drive, which the manufacturer claims to be the world's first.

The two-inch high drive uses standard compact discs it uses are capable of storing up to 550MB of data - equivalent to over 200,000 pages of typeset text.

The drive comes as clip-on accessory to the 386-based GDrivecase 1530, and is also compatible with the 286-based 1520 series of laptops.

Price for the kit is £1,750. For more information call Grid on 0172 62266. ■

Mad Hacker approached to wipe criminal records

PRISONERS OFFER CASH TO HACKER

Jailed hacker Nicholas Whitely has allegedly been asked to wipe the criminal records of several fellow prisoners.

While on a four month sentence for computer crime - he was caught hacking in to university systems - Whitely was approached by top criminals in the prison yard. They offered him large amounts of money to erase their police records following his imminent release from Brixton prison.

Whitely - dubbed the Mad Hacker - was also asked to get hold of information which would be held of use to the villains once on release. It appears that millions of pounds were mentioned although Whitely turned down the offer on the

grounds that "there's no point in having millions of pounds if you're in jail."

Computer crime is not confined to Great Britain of course. Last week 13 suspected hackers were arrested in New York in connection with the illegal downloading of a \$1.2 million C program developed by AT&T.

Several games and other programs were also allegedly stolen from Washington's City University.

The group was said to have met monthly at a "2600 Club" run by Eric Corley, editor of a magazine dedicated to hacking.

One of the people arrested is a 14-year-old known as Zed, suspected of leading the Mad hacking crew. Mod is

suspected of hacking into a USF computer system.

Corley took exception to remarks made by police chief Donald DeLoey. Defending the practices of the club and the suspected hackers as innocent, Corley claimed that its purpose was to exchange information on telecommunications technology rather than any illegal activities.

DeLoey countered that: "We have confessions from people who say that they received information at these meetings on how to legally obtain Unix code from remote systems. Zed himself said that he got the number that allowed him to call forward into the university." The case continues. ■

Kosher data on dodgy motors

A new computer system is being developed to aid customers dipping their hands into the shark infested waters of the used car trade.

The Hire Purchase Information Company, the trade's watchdog, is to provide extra information from its nationwide database on such details as number of owners, insurance damage claims and correct mileage. Buyers who will pay a £15 fee at an RAC or AA centre for a 'user friendly' printout on their intended purchase.

It's estimated that 7.5 million used cars are sold each year, half of them by the trade. HPI director John DeWitt said: "There are some very worrying details for people buying second-hand cars and we hope to provide widespread public access to our information next year."

So it appears that soon a computer will be able to tell you whether the man with the rusty Corolla is an Arthur Daley or not, a decision humans have been evidently having trouble with for some time. ■



• PC-Kwik: turn up the power.

Kwik pick

A PC utility pack from the US that can enhance the performance of any PC has been introduced by UK firm P&P.

PC-Kwik Power Pak contains five modules that accelerate and make more convenient the use of a PC. The package includes disk cache, print spooler, SMM disk, screen accelerator and keyboard accelerator.

Each of the modules operates independently but the overall efficiency improvement is claimed to be in the order of 400 per cent.

Further information about the £11.95 package on 0796 217444. ■

PC 3D graphics

Ground breaking Californian company Autodesk last week announced its latest baby, Autodesk 3D Studio, a completely interactive software tool for creating professional 3D wire and shaded graphics for IBM/MS PCs.

Now, a less than modest £2,000 (price tag tag get off most punters, but a shame at its special features) is some real realness. It is able to produce realistic shapes that move with natural motion, and generate images and animations from these quickly and easily - a feat for PC software at this time.

For more information call 0483 563322. ■

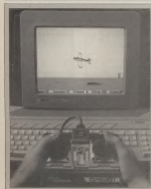
Radio control your flight simulation

If you no longer find the on-going delays of computer flight simulations remotely inspiring then you may just find this one interesting.

The logical next development, of course, is a simulation that stimulated flying: radio controlled flight but on your own computer console. The don't miss this out on the thrill of these radio controls in your hand, as you just plug it into an Atari ST. Developed by Astroble, Aerocopter faithfully reproduces all the characteristics of controlled flight, crosswinds and all.

With 23 aircraft to choose from (jetfighter or land wing) and 131 individual characteristics, plus various 'camera control' modes and the option of a military dimension (bombs, rockets, F-15s etc), the program offers staggering range, and presumably much fun for flying enthusiasts. Available from September, so price is fixed as yet. Contact: 0272 569908. ■

• Control your computer with a radio joystick.



Mavis on the Beeb

Mindscape's typing tutorial Mavis Beacon Teaches Typing is on its way for the BBC.

The program is already a winner on the PC, ST, Amiga and Archimedes, with an Apple Mac version out this week.

Mavis Beacon should be available later this year at about £30. ■

Robot scene

A two-day conference on robot applications is to be held at Bridgewater College in October 9th and 10th. Visitors will be able to see the latest in automation. Call 0984 23053. ■

Laptop PC with a trackball

The GridCase 1550x is the first PC-compatible laptop to incorporate a built-in pointing device, specifically designed to make life easier for those who want to see a more portable Microsoft Windows 3.

Grid Systems, the manufacturer, is con-

vinced Windows will be successful in the Fortune 100 Firm market and is trumpeting the product as the first laptop for Windows-based processing.

Mike Mavis of Microsoft is inclined to agree, describing the GridCase as: "a portable showcase for Microsoft graphical Windows appli-

cations." He decided: "As 386 SX processor, bright built-in VGA display and built-in pointing device make it ideal to take Excel and Windows on the road."

The system is scheduled for September in the US with no information on UK price or availability as yet. ■

This disk will self destruct in 10 seconds...

A disk which self-destructs when unauthorised access is attempted has recently been patented.

The disk only works with a laser-etched computer and cannot be used in a standard disk drive. It has its own drive motor and read-out head. Built in to the casing is an abrasive wheel which is held away from the

sensitive surface by a mesh of wires and pins.

If a thief attempts to break into the casing in order to read from the disk, the pins are disturbed, the wires break and the wheel crumbles onto the disk surface. This would certainly make backing up an interesting business.

Started rodent gets a shock from the microchips

BBC MICRO MAKES A COMEY MOUSE HOUSE

There's nothing especially fascinating about the computer mouse - unless it's alive, goes squeak and is petrified of cats.

That's the type of rodent inhabiting Pippa Giles' trusty old Beeth - at least until recently. For the mouse had discovered that hole at the back of Acorn's trusty old stalwart and had crept in and tucked up beside the humming processors and boards.

Said Pippa, of Towcester: "Due to

the summer holidays I was starting to feel bored so I went to play with my temperamental old Beeth. We've had it for many years and it's responsible for most of the games in our house.

"This time, when I turned it on, instead of being greeted by the usual tones I was greeted with a high pitched sound.

"My father took a spanner to the machine and undid the computer. I couldn't believe it. Inside was a slopy

mouse. He'd been living in the computer, using it as a toilet and storing food there."

But the mouse realised he's never get any peace, and luckily did a runner never to be seen again.

Unfortunately, the machine no longer works and has been sent back for repairs.

Perhaps if Acorn fails to bring it back to life the old machine can be returned for the homeless mouse. ☺

Laser for less than a grand

The LZR-650 is a sub-£1,000 desktop laser printer, capable of six pages per minute and able to emulate Hewlett Packard LaserJet II, Diablo 30, Epson FX-80, Proprinter and IBM graphics printers.

It produces 300 by 300 dots per inch and has 512K of memory - upgradeable to 4MB in card form - and can be controlled directly from the PC screen.

Available now, it costs £918. For more call GAD: on 044282 8681. W

Multimedia agreement

An agreement recently signed by Intel and Picturite is said to "mark the point at which videorecording and multimedia computing begin to merge as industries." This was the content of Intel's Tom Trainor.

The idea is to create windows on the computer screen for interactive multimedia. The deal also combines Picturite's digital video compression techniques with Intel's expertise in computer architecture to create true desktop videorecording.

It also extends Intel and IBM's development of Digital Video Interface (DVI) technology into the wider commercial market. W



* Busy Tandy has launched yet another laptop - this time it's a low-end IBM effort weighing in at 4799. The 13070 features an NEC V30 processor and 640K of RAM, one 720K floppy drive and an optional 1MB expandable memory card. Video comes via an LCD super-twist liquid crystal screen. There are the usual parallel port and RS232 and it will operate for 4.5 hours on rechargeable batteries. It measures a respectably compact 70mm x 310mm x 250mm. W

PC virus help is on the way

With a recent computer industry report claiming that waste lost through virus invasion is worth thousands of millions of dollars in the United States alone, the UK release of Norton Anti-Virus, a PC protection program, seems timely.

The Windows-compatible package is said to offer protection as well as cure by guarding against potential viruses as well as killing existing ones.

The system can be configured to different security levels. A background inter-

ceptor module is included which looks for new viruses.

Publisher Symantec will be releasing a regular virus update to registered users of the software. The price is £149. Call Symantec on 0626 776343.

Another plus for DOS-based machines in the release, is the United States at the moment, of W-50. This program removes memory resident and checks all floppies for viruses. It costs \$250. For more call Software Systems on 0101-215 699 5300. W

Grab those PC graphics

TGL Plus is a new package for PC users who want to manipulate graphic files.

Virtually all recognised image formats can be handled and converted one to another. Once processed

they can be loaded with the original program not being resident on the machine.

Features include drawing and automatic scaling able to stretch graphics to one per cent

original size or expanded up to 30 times. TGL Plus Windows and 305

compatible. It costs £149 and is available now. For more call Software Forward on 0234 278747. W

FROM The ARCHIVE

ONE YEAR AGO

DESK OFFICE

The all-in-one micro-phone-fax was announced by Canon in Japan. The machine, known as the FaxISP incorporated a power PC, fax machine, printer and telephone. Heavy discounting in the lead of the rising sun made this desirable machine sell for an unbelievable £1,200.

Despite the creative failures, it still hasn't rolled off the ferry at Dover Eastern Docks.

FORCE ALIVE

An enormous PC database capable of storing up to 50,000 high definition images had extra agents the length and breadth of the country salvaging. PC Aborn from Freehand could use images digitised from video or a scanner and combine picture with salient details of say, every house in Derby.

The basic system came in at £1,250 but those with money to burn (or houses to sell) could spend £15,000 on a full featured system built around optical storage.

PIRATES AHOY

Pirate copies of Nintendo and PC Engine cartridges started arriving in the UK. The carts, manufactured in Taiwan and Hong Kong were being distributed in the UK and Nintendo was preparing to flex its legal muscles in a bid to curb it.

VANISHING TRACK

Software importer Maki Khan claimed to have a product so wonderful that it would revolutionise the whole home leisure industry.

What was it? Khan wouldn't say, but confidently predicted there would be one in every house by mid 1990. We rang him one year later to find out where this wondrous product was... the disconnected.

TAXING THOUGHT

A computer was installed by the Inland Revenue designed to track down those people whose expenditure was greater than their declared income.

The massive supercomputer held a year's worth of the country's tax returns and had access to land registration, bank records and shareholder lists.

12 months later the rich still get richer and the poor still get poorer.

HOWE GLANNED

The Department of Trade and Industry slammed Data Registrar Eric Howe for his softly softly approach to hackers and computer misuse.

Replying, Howe said: "You've only yourself to blame if a neighbour's cattle get into an unfenced field. The government has taken notice and the Computer Misuse Act is currently building a high voltage electric fence to keep the cattle out."

PROBLEMS PROBLEMS

Industry pundits jumped for joy at the rumour that chip giant Intel may have been having problems with its full-featured 60486 PC driver. The rumour proved unfounded as the renamed 486 quietly took its place in some of the more expensive PCs.

TWO YEARS AGO

EASTERN INVESTMENT

Japanese electronics group Fujitsu backed Sir Clive Sinclair's bid to produce a cheap water chip as part of its £6.5 million investment package in the UK.

STG GOING CHEAPER

Distributor SCL piped Atari to the post in the price cut wars with a £299 STFM only weeks before Atari's own £100 cut.

FAIRED EEL

Konic donated part of its stand at the Earls Court PC show to the National Association of Computer Retailers in an attempt to help clean up the computer industry's image.

The NACR rolled out a nine-part charter aimed at improving the professional approach of dealers and offering fair deals and good quality merchandise to the end user.

NEW! **COMPU EXPRESS** SHOPPING EXPRESS

POWER STATIONS

Amazing new machines offer computer, fax, phone, touch screen and printer all in one!

• The first move of computing in Japan!

INCREDIBLE!

Double play action!

CHEAT MODE II THE REVENGE

If you have a CPC, there must be a game which has had you stumped. There has got to be a screen or end-of-level baddie which you just can't beat. You must be getting frustrated with various screens which you never seem able to complete. But fret no more; the answer is here.

Cheat Mode II The Revenge

Compiled by Britain's biggest selling magazine CPC magazine and New Computer Express's sister; Amstrad Action, this 130 page spiral bound book is crammed with pokes, hints, passwords, maps and tips on hundreds of the best CPC games. In total, over 750 essential cheats can be yours for only £9.99, or buy the book plus tapes (to save you time in typing in the listings) for only £11.99 use the coupon below or ring our hotline number on 0458 74011

**There's no question about it.
YOU NEED IT.**

Yes! please send me the following right away

please quote number required

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- ☐ copies of the Cheat Mode II tapes at £11.99

Remember to add £1.45 to the total cost for postage and packaging.

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MORE HARDWARE THAN YOU CAN USE!

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- Embellishes with. Now you can run ALL software.
- Easy to fit - no technical knowledge or tools needed.
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CPC

TIME WAITS FOR NO MAN

Well I'm damned if those deadlines didn't catch me out again. There I was, determined to be on-the-ball and bring you a special exclusive console story in this 'new column' as soon as the story broke, and blow me, those lads on the Express news pages beat me to it.

You see the whole problem is that I have to write this column a couple of weeks in advance, and those crafty newsounds don't always tell me what's going in that week OK, so I don't always ask... anyway, the apologetics that years truly has been well and truly scopped. Still, better late than never...

What great news it is, though! Anyone expecting to see the CPC tattered up with just a few bells and whistles must have been well and truly gobsmacked when they saw the new Plus machines. And what about the console - cyber or what?

Actually, I've known all about the new machines for weeks (boast boast!) - I just couldn't tell you. Amstrad had the whole story embargoed until the end of August, even though it had flown a dozen UK journo's over to Paris in June for a sneak preview. You can imagine what it was like sitting on all that news and not being able to breathe a word of it.

LOOKING TO THE FUTURE

Anyway, by now you've read the news story, and the review (a couple of issues back), what are the implications for existing owners?

Well, the best news of all has to be that all those CPC's already out there have not been rendered obsolete. Far from it. The only advantage offered by the new machines is the ability to run console games. Although these will feature better sound and graphics than traditional CPC fodder, the old machine is still a pretty fair games micro even now. And even publishers writing console games look likely to produce versions for the old hardware at the same time. I say 'old' hardware, but the fact that tape or disk software produced for the new Pluses effectively still runs that hardware isn't exactly the new dedicated chip - only cartridge software can't mean that not only will old software work on the new machines, but tape/disk software written for the new Pluses should work

on existing CPC's too.

And Amstrad's relaxed has got to be good for CPC owners if only because the renewed interest in the format should give rise to a fresh burst of software releases - publishers will be keen to attract a whole new batch of users, after all.

One of Amstrad's smartest moves of all, though, is its decision to produce a range of machines and not just a console. And by incorporating a cartridge port into the Plus machines it's generated a perfect upgrade path for console buyers who decide they want to get properly into computing instead of simply playing games all day.

All in all, Amstrad has shown itself to be extremely serious about the 3-bit market in general and the CPC format in particular. After months - years, even - of speculation about the imminent demise of the CPC, the machine has received the biggest push it could hope for. And those sceptics who thought the CPC was dead - well, you ain't seen nuttin' yet!

BURNIN' RUBBER

This brings me neatly to Burnin' Rubber, the Ocean driving game bundled free with both the G84000 console and the 464 and 6128 Plus. I first played this game in Paris at the launch, but the version on show there had no collision detection and, unless told, so it was difficult to form a final opinion. Now, though, we've had a console in the Amstrad Action offices for a couple of weeks (but yer hearts out) and I've been able to play it properly.

Imagine a cross between MEC Le Mans and Chase HQ and you've got Burnin' Rubber. It's a game loosely based on the 7th Street Le Mans sports car race, and you're driving your 200mph monster over a twisting course complete with (very hard) ad hominings, hills, dips, other cars and even tunnels. You have a time limit to complete each stage, and as the race progresses this time limit gets tighter and tighter. Ultimately, you'll be relying on the time bonus gained on earlier, easier stages just to keep going.

Making very sharp swiftness is that and, indeed, at first it's hard to spot any huge technical advances over the standard CPC. True, the main sprite is very detailed, and the whole thing is

extremely fast and smooth... and then you crash. And that crash sequence really shows up the console's power as your car careens off-end-over-end down the track and finally spins to a halt. You see your car from a variety of different angles as you crash - always perfectly detailed - and the scrolling slows down not one jot while it's happening. This is where the sprite hardware really shows its merits.

The second - and even more spectacular - surprise shows on you (almost literally) as you carry on racing. Is it your imagination, or is that sky getting darker, the ground redder? No, it's not your imagination. The new hardware has a huge palette of 4,096 colours instead of the CPC's 27, and Burnin' Rubber's programmers have made full use of them to provide a subtle and often breathtaking series of transitions from total daylight, through dusk, into full night. All helped, of course, by the increase in maximum on-screen colours from 16 to 32. Until I saw it, I would never have imagined simply increasing the palette could have made such a difference.

And the sound? The improvements are subtle rather than startling, and masked by the fact that the new monitors have much better speakers and that the programmers have done such a good job in the first place. Your car's engine roars convincingly and your tyres squeal horribly as you overcook the corners - you even get a regular, rhythmic 'tut' as you bounce down the track in the crash sequence.

As a game, Burnin' Rubber is playable in the extreme. The plot is about as thin as it could be, but the collision detection, sprite response and judging of time limits all make up for that to provide the best racing game the CPC has yet seen.

P.S. if you can make it into the right, you're getting pretty good.

SPECTRAVIDEO STICKS IT TO 'EM

All this stuff about the new Amstrads is threatening to squeeze everything else out this week. There's just space, however, for a mention of Spectravideo's latest joystick bonanza.

No, there's no new button-spraying, air-sucking, wheel-busting wonder-stick this week, instead, Spectravideo is cutting the prices on its entire Quickjoy range.

Typical reductions include £3 off the Quickjoy Junior, down from £5.95 to £4.95, and £3 off the Quickjoy NG Pro for the Nintendo, down from £22.95 to £19.95.

OUT WITH A BANG

Meanwhile, for compilation fans everywhere, Danark is releasing TWT, an 'explosive' collection of five Tengen arcade conversions. These consist of Hard Driver, Doublet, APB, Dragon Spirit and Rybets, all two releases from last year.

TWT should be available on the CPC in the next few weeks. The only bad news is the price - £14.99 on cassette, £24.99 on disc.

Rob Lawton

CPC 9
Spectrum 10
SAM Coupé 10
PCW 10
MSX 10
QL 11
BBC 11
Archimedes 11
C64 11

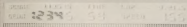


*37 engine in turbo.



Pushing things game of 16 week.

Amigo 14
PC 16



Burnin' Rubber: Terrible speed, playability and sprite handling from the first console game.



Burnin' Rubber: Terrible speed, playability and sprite handling from the first console game.



SPECTRUM

PLUS 3 USERS GROUP

Plus 3 owners are always whingeing on and on about the lack of specific support for their machine in terms of software and magazine coverage. This can be tedious, so cross over the street if you see one coming and don't start talking to them at parties whatever you do. They're got a point however, which is why an organisation of like minded people was set up a year ago to give the kind of selective support to the Plus 3 that its legions of users demanded.

"The Plus 3 Users Group" is the sharp name of this sterling body and thanks to Express you can join at a discounted rate. Rather than the £11 it costs everyone else to subscribe to the Plus 3UG for a year, members of this column can save £1.50 and sign up for the specially reduced sum of £9.50.

Membership of Plus 3UG gives you access to a helpline conducted by post, telephone and modem; an absolutely huge, although not completely free, PD library; and 12 issues of Contact - the AS (half the size of Express) 30-add page club mag.

It's a good deal and the group is expanding even as we speak. Join up at The Plus 3 Users' Group, Games, Designs, 57 Lower Walk, Duncton, Bideford, Devon, PL5 4BG.

GHOST

Here's the second thrilling instalment of Ghost, A program which effectively bypasses incompatibility problems on the Plus 2R and Plus 3 by transforming them into a 486 Spccy, minus the rubber keys and dodgy power lead, of course. If you missed the first part or can't summon up the energy needed to take the whole blooming thing out send

an SAE and tape for a copy for SAE and 10p for a printed version to the author: M Harris, 1 Sellers Lane, Farnham, Kent ME 13 8YD. The same bible will also appear supermarkets and village stores for a reasonable fee.

1095 DATA 237, 176, 17, 125, 27
1040 DATA 14, 4, 237, 136, 17
1040 DATA 244, 27, 136, 17
1070 DATA 176, 17, 75, 38, 14
1075 DATA 3, 237, 176, 17, 64
1080 DATA 21, 14, 25, 237, 176
1085 DATA 17, 142, 9, 14, 23
1090 DATA 237, 176, 39, 110, 94
1095 DATA 17, 111, 56, 54, 255
1100 DATA 1, 145, 4, 237, 176
1105 DATA 62, 255, 56, 79, 5
1110 DATA 199, 62, 243, 56, 9
1115 DATA 0, 59, 0, 64, 63
1120 DATA 50, 32, 92, 197, 233
1125 DATA 209, 131, 2, 0, 0
1130 DATA 214, 165, 48, 9, 179
1135 DATA 17, 54, 25, 253, 203
1140 DATA 10, 126, 233, 254, 13
1145 DATA 205, 142, 2, 83, 105
1150 DATA 110, 98, 108, 97, 105
1155 DATA 114, 32, 92, 197, 233
1160 DATA 101, 97, 114, 98, 104

The third and final part of Ghost appears in Express next week. Order your copy now or remain incompatible for ever.

Here's the regular place for correspondence section. Please send all Spectrum hints, puzzles, cheats, fanclubs, software, news and comment to: Robin Alway, New Computer Express, 30 Monmouth Street, Bath BA1 2BN.

If you want a personal reply throw an SAE in and be prepared to wait a few months.

Robin Alway



SAM COUPE

COMPUTER FAIR

The real All Formats Computer Fair sounds like an event Coups owners should attend. It takes place in the plush surroundings of the Royal Horticultural Halls in London on Saturday September 1st, 10 am - 5 pm.

There will be a SAM village packed with Coups related stalls including SAM Computers - Bruce Gordon and Alan Miles' new company. Admission price is a not-to-be-forgotten £3.

You may remember, although I still blame you if you don't, me writing a tip which let you load in a FLASH typeface. Well here's a much simpler way of doing the same thing. SAVE a font to disk or tape from FLASH! Reset the SAM, Type LOAD "flaveme" CODE 20800,1090.

When it has finished loading, the new text will make its appearance.

Thanks to Zink Graphics, who put out a disk crammed with SAM software every four months, for supplying it.

It'll print a full review of their wares when I get sent a copy.

NEW ASSEMBLER

There's now another assembler for the SAM. SC Assembler has been written by the author of some respected Spccy utilities, Steve Neilson, and comes on disk only. The accompanying bump claims it's the best Coups assembler yet, and it certainly looks impressive with a word processor-like display of 62 columns and a gauge down the side of the screen indicating the amount of memory used.

You can configure ML, paper etc before you start and, although I'm a bit tricky when it comes to technical things, the editor is apparently easy to use, with keyboard keys employed throughout and worded error messages.

Other features that will impress assembler users are a source compressor to save memory and the fact that SAM ROM isn't used, thus ensuring complete compatibility.

SC Assembler costs £10 on disk only. From: Steve's Software, 7 Harrow Close, Hove, Cambridge CB4 4XX.

Robin Alway



PCW

FLIGHT OF FANCY

I'm often accused of being frightened of flying. This is nonsense. It's the crashing I'm afraid of. I can see on a plane in China. The stewardess looked herself in the toilet. In trying to rescue her, the co-pilot got his watch and therefore himself caught in the lock. In trying to manoeuvre the plane back into the air, he lost the cabin. Luckily they got back before the automatic pilot had a chance to land on vertically up a skyscraper in Hong Kong harbour.

Anyway, for those who want to try their hand at piloting a lighter plane the excellent flight sim, F16 Combat Pilot, will be available for the PCW from Digital Imagination from mid September, price £24.99. Great for teaching you how to fly a lighter plane but maybe not so good for showing you how to get a stewardess out of a toilet. Phone 0276 684959 for details.

CAN OF RIBBON WORMS

Life is short. So are ribbon botmen. And carbon ribbons. 9512 owners will know that their carbon ribbon cassettes wear out all too quickly. Now Aladdin has brought out a kit to fit to replace the carbon film and spools in your existing cassette. At £30.99 it claims to bring down the cost of replacing a ribbon to £2 a throw instead of the £5 or so you pay in shops. Aladdin is on 05907 507905.

PIPS ARE GOING... MORE PIP OPTIONS...

101 Object file transfer for transferring machine code files. Ignores control-Zs which would normally be an end of file marker.

104 Page, inserts and of page markers every x lines. If no x is specified will take x to be 60. Normally used with 17 to take out page odds already in a file and reinsert them to the desired figure.

106+2 Quit. Stops copying the file when the specified string 0 is reached. PIP M-A-W, *SOPRED*+2 for example will stop copying when the word FREED is reached. Only seems to work with capital letters.

111 Reads system files which PIP normally ignores.

150+2 Starts copying when the string Q is reached. Often used with Q to give start and end points.

LOGO TIP

Keep details of your diary, school phone numbers etc... in a file called TEM-PLATE.S7D on your startup disk. When you run up LogoScript it will automatically be copied to drive M, meaning you can look up the details whenever else you're doing.

If you make changes, remember to copy it from M back to the startup disk before switching off.

BASIC TIP

The command OUT 248,0 blanks the screen. OUT 248,7 unblanks it.

Rob Ainsley



MSX

POOR RESPONSE

Reading this month's Network magazine, the alternative magazine for the MSX user, I see that the response to the MSX programming competition has been very poor so far. This is in spite of the fact that there is a prize of £100 to the person who sends in the best entry. It still isn't too late to send an entry to Network, so if you have written anything for the MSX, and think that your effort is worth seeing, send it to Network, 398 Park Lane, Maghull, Merseyside L31 4HQ. Entries should be sent on 3.5-inch disk if possible and, of course, don't forget that good documentation also helps. The only thing that Network asks of you is permission to add the competition entry to its public domain library, which is a small price to pay if you happen to win the hundred quid.

KLAX

I have now had a full week playing Teenage/Donark's latest release for the MSX, the highly addictive game Klax. If you believe all you read on the package that Klax is supplied in, it has got to be the best thing since sliced bread. For example, "The latest craze from California, '90 Waves of sheer fun!" and "The fastest selling computer game" are just a couple of quotes from the blurb on the box, so at least Teenage believes that it has a winner on its hands. The game is supplied on tape for the MSX user, and is priced at £9.99. It is a pity that a disk version is not available for the MSX user, as there are a good number of MSXers with 3.5-inch disks, particularly in Holland and Germany. We seem to be the only format without a disk version. Is the game as good as we have been led to believe?

How do you describe a game like Klax? How about a sort of 3D Tetris with added features (what do you mean you haven't seen Tetris, everyone must know Tetris). All right, for those who haven't, the object of both games is to position falling objects, and stack them in certain positions to score points. In Klax the objects are coloured tiles, and you have to catch them as they tumble towards you down a five lane table. Flip the Tiles into bars to make coloured stacks, and try to make rows of three or diagonals.

It all sounds so easy, but when you have half a dozen tiles at cascading down the table at the same time, things can get a little hairy. All in all Klax is a very good game, and if you enjoyed Tetris then this game is an essential purchase. This game took top marks on most formats, and the MSX version loses nothing when compared to the other versions.

READING MATTER

Good news for MSX users in the Reading area, a new computer store has opened, and they are stocking MSX software. Although they only carry a few titles in stock at present they have assured me that, if the title you require is available, they will attempt to get a copy for you. The Company is called Computer Vision, 30a School Rd, Tisbury, Reading, Berks, RT 0734 452416. They also supply mail order, so here is another supplier to add to your list.

Keith Neal

► C64

ALL TAPED UP

SOME TIME ago now, your reader (about four months ago) was a little more pro-pel. I mentioned a chap called Jack Lacherty. He is the figure behind a software company known as River Software, and he's been producing cheap adventure games for the C64 for some a month, so you should know what he's doing by now. When I mentioned him last, he had adventure games available, and these were sold over three disks, each disk costing £4.50. Well, it can tell you they are now available on tape (they weren't for a while). One of the titles has gone missing, but there are now eight adventures on four tapes, each tape costing £2.50 including postage - a ridiculously low price. I can thoroughly recommend these programs, being a great lot of the traditional way of doing things. So if you're a tape-driven C64 user who's feeling staid of adventure, the address to write to is: River Software, 44 Hyde Place, Aylesbury, Chilterbury, Kent CT3 3AL.

IT'S SHOWTIME

No doubt plenty of you will be going to the Computer Entertainment Show at Earls Court, London, on September 15/16. There will be a big Commodore presence, or so my spies tell me, and as ever with shows such as this it could be a good chance to pick up a few bargains. It's just a pity that the show is in

London. I know it's handy for Londoners, but what about the rest of us? Where's Commodore's next UK tour?

LET'S SPOKE AGAIN

A few more titles and then you're in, those games that continue to debut as it. On Bonapack, you can PORE 5112, 0.5YS 3101, Or Ghoulbusters, you can PORE 38454, 96: 5YS 24536. On the currently named IQ, you can PORE 25017, 256: 5YS 24586. And finally for this week, on our old friend Attack Of The Mutant Cornels, you can PORE 2019, 0: 5YS 4096.

OLD BUT NOT FORGOTTEN

Ever discover something morning or even years after you should have discovered it? Something that would have saved you time and lots of ill-fated spent learning things the hard way when you could have learned them the easy way? I made such a discovery recently. So if you're one of those people about to embark on the tricky path of learning machine code, then I can recommend a book by this programming legend, Jim Butterfield. It's published by Blackie books, is about three years old but being by Jim is still very relevant indeed, and is called Machine Language For The Commodore 64, 128 and other Commodore Computers. Note however that because of the book's age it does not cover the Amiga. Nevertheless, anyone with a 64 who is keen to study machine code is well advised to track it down.

Pete Gerrard

► QL

PDQL

Quanta, the QL group, have received several complaints over the past few months about PDQL, the Birmingham-based QL software and hardware supplier. The rum grumble has been about non-delivery of goods ordered, although credit card accounts have been debited and cheques cashed, and extreme difficulty in getting refunds. While this has been happening I understood that the Birmingham Trading Standards people have become involved, over PDQL's 2 compiler, which has never been advertised for over a year, but has not been shipped to a single customer, as far as I know.

PDQL has also been in trouble with some of its suppliers, notably Miracle Systems and EEC, over delays in payment for goods supplied.

By the way, the safest way to order items from a mail-order supplier is with a credit card, provided the value is over £100.

If the supplier doesn't come up with the goods, you can claim all the credit card company saving a lot of messing about. Where smaller sums of money are involved it might be a good idea to ask for the goods to be sent COD if you aren't 100% sure about the supplier.

A GOOD DESIGN

In any opinion the QL, although it is over

six years old, is still one of the best looking computers around. This is hardly surprising, as a top designer was responsible for putting together the external design - the case and keyboard.

This emphasis on good design is quite unique in my experience for what is, essentially, a low cost machine intended for mass production.

Moreover, the case of the QL is constructed from ABS - a high-quality and fairly expensive plastic.

ANYONE FOR TENNIS

Plaza, well known for the Designer and a couple of classy new laptops, probably isn't the one for mentioning this, it started off developing games for the Spectrum.

Even after it moved upmarket and sold Sierra the suite of programs that was bundled with the QL, they maintained an interest in the games market, and released a couple of games for the QL - Chess and Tennis.

Plaza Chess was the first chess game to offer the option of a three dimensional representation of the board and pieces and plays quite a good, aggressive game.

Even if you aren't particularly interested in chess it's worth getting hold of the game just to impress your friends with the capability of your system.

The Plaza Tennis game is an equally neat piece of programming, and well worth buying, if you can find it on sale.

John Tomlin

► BBC

WW PLUS QUESTION

I received a call from the other day from a Windows Plus (WW+) user who wanted to know how to set it up with his printer. It is always difficult to answer queries like that because of their broad nature, but I took it to mean that he wanted to make use of more than just the simple built and default etc available from the function keys of WW+. This however turns you into a never ending cycle of deciphering the escape codes given in your printer's manual, incorporating them into your document, going back to the manual, and so on. For a new user this is plenty impossible, so what can be done? Three solutions are sent themselves.

One: Do nothing, after all life is short.

Two: Buy a good book such as Windows Plus: A Users Guide, by Bruce Smith. Most books or WW+ tackle the problem mentioned more elegantly than others.

Three: Get hold of a printer driver ROM, such as Hyperdriver, which helps you out of the jungle in various ways.

KLAX

Klax, from Denmark, is yet another variation on the Tetris theme of living as coloured blocks to score points. Klax is a very addictive game with really good graphics. The graphics are coarse on the Tetris low resolution mode 4. Manchester mode 0 graphics have been better.

Andrew Brown

► ARCHIMEDES

IT'S SHOWTIME, FOLKS!

Beetle on down to The Horticultural Hall near London's Victoria Station. That's this year's venue for the BBC Access User show - now the only big dedicated Access show - between 7 and 9 September. The Horticultural Hall used to be the regular haunt for the legendary Micro User 30303s, but these of you with better memories may remember the balding non-speaking role as Indiana Jones and the Last Crusade - I starred as Bertie Ralston.

Last year saw the A3000 debuting. There won't be any new 'cheap' Archimedes this year, and there might not even be a new 'expensive' one either. Access could take the opportunity to show the inevitable non-Linux version of the new 1050 ARM3 User machine, which would simply be an ARM3 RISCOS machine, with 4 to 16MB of last memory and a hard disk. It's likely to cost about three and a half grand, and for less you can take in name! Arc 410: add extra RAM, an Apple IIe ARM3. Archimede 3MB memory expansion and season with a hard disk to boot. It won't be quite as fast, but it will be close.

The only real advantage of the 1050 is its plug-in processor board, which should make it possible to add an ARM3 next year, or an ARM3 board fitted with the FFA floating point accelerator chip. Then again, I bet someone will do something similar for that 410. I'll just wait for the new at the show! Lots of Arc software. Sebby's Darton, Claret's Timestep, Impressions release

two and Impressions Junior from Computer Concepts will be talking if out for the DTP market. Mr Maestro's Flexible, which could easily have had the Multistore Junior moniker, and DeskTop Office - but none of that now.

Claret, purveyor of graphics software to the gallery, will be showing Photoeasy, a basic composition package that's more sophisticated than the brother Maestro. It's Mac-compatible, but not aimed at the professional market like Photoshop's.

Also the Independent 2 light sign. More scenery to train your cameras at, a more realistic aircraft to fly, and instant!

SCHEMA

Unexpected news from Claret's Schema. This is, or was, Acorn's Arc spreadsheet, in the works for 'simply' ages. But application software has become something of a hot potato in Cambridge, and Schema has been passed to Claret to finish off together with the actual programming. CHM, who were 'marketing' in the QL world at one time. All the numbers said 'Schema is an albatross' - I've tried it, and the numbers are wrong. Now a three-legged chicken perhaps.

It has a lot going for it, it's a spreadsheet with the traditional structure of rows and columns, the normal spreadsheeting functions are good to excellent - maths, lists and finance are well covered - and business graphs and charts are built-in. Financial functions fol-

low UK accounting conventions, not the US systems used in PC and Mac packages.

I was Microsoft's Excel that showed how a WIMP spreadsheet should work, and Schema aims at that level. It doesn't quite reach it, but in one respect it's well ahead. There is a script language that makes the spreadsheet programmable.

There are some rough edges, but it's a good dedicated spreadsheet, very customisable, and worthy competition for Proplanets. Is one negligible? Don't know, but when I see the on-line version, I'll report.

SCREEN GRABBING

On the Arc you can grab the screen with Paint, using the Get screen area menu option. But a 1MB Arc may not have enough memory to run Paint as well as whatever you're trying to grab a picture of. So, set up a new folder called ScreenGrab, inside that, put in a file called Run. Edit that a special Create menu option for writing new Clay files. All that says is:

SCREEN GRAB (COPY) 2000, ScreenGrab Whenever you want to save a desktop screen, you can use ScreenGrab to put the ScreenGrab folder on the icon bar. Click on it later to save the screen. ScreenGrab is only 32k so there should always be enough memory.

The screen is saved in a file called Screen in the ScreenGrab folder - click on the icon to get to that file.

Ken Coombe



CALAMUS SPLITS!

The world's biggest Atari show took place in Germany last weekend (and next week's Express for a full report), a country where there are over 600,000 STs — twice as many as Brits! — and where the Mega is considered practically the base machine. Mention a 520ST with a single-sided drive in Gusseldorf and you'll have them removing their brows and saying, "Eh... was ist das, bitte?" (That's enough German — ed).

Why? Well, the ST has come much closer than in fulfilling its potential as a "serious" machine, for what the Americans like to call "productivity" uses. It runs factories, yes, really, it has a strong presence in schools, colleges and universities, and it is not uncommon to find it used as a DTP engine.

In this country, by contrast, desktop publishing on the ST is just beginning to take off. Now the latest development from Sigma Publishing could help it to grow that lot faster.

For Sigma has announced what is effectively the splitting of Calamus. The current version is to take a significant price cut of almost £295, down to £267.50, to make room for Calamus SL, the colour version released at the Atari Messe.

There is of course another way of looking at this. For the new version, which enables DTP users to produce their own colour separation files for outpouring to a Lithrone machine and thereby save on expensive repro costs, is in fact going to cost something not unaffordable to £500 — a good deal more than the previous version before the price cut! So the announcement can be interpreted as either a price cut for Calamus — or a price nudge.

Confused? That's not at all. Because the more obscure version may now already be aware of a company called Newton News Services, which has for some time been

underwriting Sigma by a good £100 (but also selling Calamus for £299, and showing in a set of TOS L.A. ROMs for free. And when you discover that you can buy it for \$170 in the States, you begin to wonder just what the hell is going on).

In fact, thousands of legal action are being muttered about by both parties, with HMS quitting from the Treaty of Rome, which forbids other restrictive practices; and Sigma alleging price fixing (not, as far as we know, a criminal offence).

Because of Sigma's links with the German company that holds the licence to Calamus it may take a while for HMS to get supplies of Calamus SL. Certainly it has not officially announced it. But you'd do well to bear in mind the various deals an offer from the two companies should you be about to invest in Calamus. HMS is on 0275 859103, while Sigma is on 0235 341600. Compare, in exam papers say, and contrast.

TOMORROW'S WORLD

The Atari Mega may have proved short on starting new developments, such as the launch of the controversial STE last year, but at least it gave visitors a chance to see the TT (yet again).

This, of course, is Atari's much lauded (and much announced) £2,000 super ST, which is nothing else other than a glimpse into the future of the current machines. What the TT owner does today, you'll still do tomorrow.

The starting thing, as readers of Express will already know, is that even before launch the TT has recently shot up in speed from very respectable but hardly earthshattering 16MHz up to a gloriously fast 32MHz. That means that ST software will run on it some five to seven times faster. And with optimisations, that should increase it some 10 times per cent.

The rest of its specifications make south-windward sailing for those of us who are tired of the sticking with Atari for some years, too. Stated by a 32MHz machine with 2MB of memory, 4MB hard drive and super-high resolution monitor.

It's impossible to put a date on it, of course, but I reckon that by the time the next World Cup, when you're looking to replace your current model, that's the level of specification you could be looking at. And it sure as hell won't cost as much as you might either.

SIGNA OPENS UP

More news from Signa (see the Calamus drive at the beginning of this column), which has announced the opening of its first branch office, in the centre of Sheffield.

This is good news indeed

for those of you lucky enough to reside in the beautiful north of England (help patronage and get on with it — ed), for in forever opening letters that complain about the southern bias at ST shows and parties.

Anyhow, Signa boss Mike Dale tells me that Signa Northern is actually two sales on the 4th floor of a converted mill. "I anticipate the office will be completed and fully open by the middle of September," he predicts, "at which time we'll be having open days and demonstrating our complete product range, including Signa's Social sciences, DCL Calamus." "At this point I had to interrupt, but Mike was about to read his whole catalogue out to me.

Anyhow, Signa Northern is at Adolwood's Mill, Nursery Street in Sheffield, and you can see it on your way home by calling 0742 823155 (or having a begging letter on 0742 823125). Best of luck to him, say!

CUBASE 2 HITS TOWN

As mentioned in this column a week or two ago, the latest upgrade of Cubase should now be available from your friendly local music shop.

In fact Cubase is bursting out so much with version 2 that it can't come on two disks. Although Everdick is keen to stress that you can still use it with just a single disk system, it incorporates a number of new features, the most notable being, I'll guess, full WYSIWYG score printing and the Interactive Phrase Synthesizer, a wholly new facility that enables the modelling of new versions from existing music.

Another new feature is the option to "throw out" modules to give space; you can discard the Score Editor, for example, if you're working with a 1040ST or Mega 1, leaving more space in memory for recordings.

Cubase v2, which also includes a new bug fix to 1.5, is free to all official Cubase users, or new for £395 (plus four Everdick Soundworks Ltd 0993 990084).

CALLING FLOPPYSHOP

Steve Delaney of Floppyshop, the delicious Aberdeen-based PD library and list of ST wisdom, has asked me to report on that the CD catalogues should go on 0224 312756, and not on the old number some people are still using.

By the way, the lecture is now available between 9am and 4pm Monday to Friday, effectively a doubling of the old hours.

OUTLINER FOR ST

A Mr Neil Symouth of Bath has written, complaining. And for why, you ask? Because he can't get his hands on an outline program for his SL.

"In case you've never been



it there, you type of game which really makes the adventure fun. It's the racing simulator. Last Streetracer the games charts were dominated by car races from every respectable software publisher out there. In recent months as we've seen a decline in the number of racing games but this week it's the time of the Atari game to catch on in the additional format.

Haley Davidson is a motorcycle simulator in the same vein as *STP Roads and Speed*. The objective is to race from the East Coast to St. Louis in a mere 10 days. When the game starts you have a battered Harley Davidson and you're dropped in the middle of a desert. The idea is to build up cash to that you can improve your bike and purchase new riding gear. As you go, you can give a meagre amount of cash at the start and you can play over and over again to increase your wealth.

The points scored at increasing your financial reserves include typical motorcycle races. For example, there's the slow ride control where you need to maintain your Harley as slowly as possible without falling off and there's the *Speed Run* in which you need control. Here you're pushed into a race and the odds on the back of the bike being *Frankenbikes* which hang from strings above the road while your street rider speeds on.

During the race you move through several towns and to buy new equipment you simply stop at the bike shop where you can point and click on the screen to buy. The various shops enable you to buy various engines, controls, belts and other extras essential in making your bike the coolest machine around.

In between races you need to break the typical junk in the road and its logic and as fast as possible. It's a fast-paced game at 40mph the speed where you're driving and aiming for. If you try and do more than you really end up going a bit but pull it in and then let it go without incident.

This is undoubtedly one of the better bike games around. The control of the bike is realistic, with clutch, controls, shifts and gears. The road runs smoothly and the bike is easy to move. There's even a realistic engine noise. There's nothing particularly original about the challenges but the story and game make it an absorbing and exciting thing. It weighs in at a hefty £39 but if you get money to drive around, there it is. This decision — you watch repeat it.

Mark Higham

unfortunately enough to be obliged to sit in front of a PC computerized "hell" writer.

"Outline is perhaps one of the few good pieces of software ever to appear on MS-DOS. It's a text editor — more properly an ideas processor — that enables you to set down ideas, edit them, move them around and 'nest' them.

"So you have long flashes of inspiration and put down every idea on a separate line. Then you start organizing and expanding. It doesn't sound much, but believe me it's brilliant. But I can't find such a program for the ST. Why not?"

Well, Neil, I have suffered the PC/compatible fate, and Outline is, I admit, brilliant.

The good news is that there is such a piece of software for the ST. It's called Foldout, and

it's actually intended as a programming editor.

Best of all, it's public domain — so you can buy it, then, and it's not out to scratch, then, you've hardly lost it all. It's available from Floppyshop; call Steve Delaney on 0224 312756.

Still, does anyone else have any other such programs? They really do help the creative process.

The only other program that's remarkably like what Neil describes in the Scrapbook section in the utterly unspeakably brilliant *Maniacs*, which may cost £50 but is worth every single penny.

It's a superb suite of programs and utilities, and it's available from H&M on 0525 718981.

Steve Curry

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CONSOLE DODO

No one who is impressed as myself when Commodore announced the CDTV system. With built in CD player and full Amiga compatibility, the CDTV was not only good news for the Amiga, but for the computer scene as a whole. Now, after many months of characteristic good decision making, Commodore seem to have gone back to the old days of blotching things up with the release of its latest baby - the Commodore Game Console.

Based on the aged C64 (which, admittedly, has become one of the most successful computers of all time), the console uses the easily aged cartridges which Commodore tried to introduce when the C64 was originally launched. OK, the C64 still sells well, but what myself and many other people can't understand is why Commodore didn't produce a cheap console based around the Amiga. OK, this could have seriously hurt the CDTV before it was even launched, but what machines such as the Mega-PC, PC Engine and Magazine, capturing most of the console action, Commodore's aged 8-bit is going to be up against some stiff competition.

Then again, Amstrad too has decided to plunge into the console market with a machine which is based around ancient 8-bit technology. The difference here is that Amstrad seems to be marketing such things - as we all know, marketing has never been a factor in Commodore's favour.

MUSIC UPDATE

When MicroIllusions launched its acclaimed Music-X HDI sequencing system, Amiga musicians were promised a whole host of add-on modules to further enhance an already impressive product. Indeed, MicroIllusions went to great

lengths to stress that Music-X was for more than a sequencer, preferring instead to call it a "complete music workstation on a disk".

Among these items promised were a whole range of patch editors for use with the Music-X Librarian page. MicroIllusions promised that several were being developed including editors for the Kong III (in still waiting to program my M3 from the front panel) and the Roland D10/C10/G20. OK, there are plenty of patch editors already available from other companies (such as DLT) but what made the promised Music-X editors so special was their price - a mere £10 (D10 editors will set you back 10 times that amount). But as we all now know, none of the promised add-ons have materialised.

According to MicroIllusions, the patch editors are still coming. If you've acquired your Music-X program disk (in version 1.1, there are a couple of extra patch editors included on the non program disk, although what they are is still unclear). MicroIllusions is now hard at work on Music-X version 2, which will include many enhancements over the original including, full score editing (about halfway there), drum editing and playback, over algorithmic composition. The new program should be available later this year for £300. For more info, give MicroIllusions a bell on 0480 496497.

On the subject of music software, look out for a feature in a coming issue of Express that will get the best of the Amiga budget sequencers in a head to head comparison to find the best sequencer for your money. Stay tuned for that one!

MOUSEY MATTERS

Although the Amiga Workbench is predominantly mouse based, it is still possible to use your Amiga if your mouse suddenly dies or you forget it is all too common. The answer lies in these little wonders, the keyboard shortcuts. Here's a list of those available -

- Right Amiga + R - Clears the currently active string gadget (such as the icon rename option on the Workbench).
- Right Amiga + Right Alt - Same as pressing the left mouse button.
- Right Amiga + Right Alt + Control keys - Means mouse pointer.
- Left Amiga + Left Alt - Same as pressing the right mouse button.
- Left Amiga + Left Alt + Control - Drags selected icon or window around the screen.
- Left Amiga + V - Selects the HELIX gadget on a system requester (even if the mouse pointer is not over it).
- Left Amiga + B - Same as above, but selects BANG21 gadget.



After saying in last week's review of Escape that puzzle games are the next thing, what should appear for the Amiga this week but a review of yet another puzzle game.

However this time the style of the game is quite different, instead of creating a strategy and survival situations like Escape, there's now a spot for the cute-and-bouncy feel. You play a small brown blob known as an 'Amibo', who is trapped in a strange world-like building. Each room contains a square of blocks in one corner, displaying various coloured symbols. You must destroy a great number of these tiles by throwing a similar block into the pile, but you can only hit and destroy tiles which bear the same symbol as the tile you are throwing.

It is not possible for you to hit a tile like the one in your possession, then a mine is triggered up and you lose a life - lose all your lives and you are told that you have no moves left to take. However, there are occasional 'lucky squares' which when they appear can give you lives a boost.

The gameplay of Plotting is simple enough and the graphics and sound are of the pretty straightforward, 'cutey' type. Having said that, Plotting does have a sort of charm that makes it great fun to play. The early levels hit you into a false sense of security, so that you think "Oh, this is dead easy!" only to find that somewhere around level six that you've managed to cut off the green squares where that's bound to be your next target.

Getting through the levels is by no means an easy task, but even if you do the steps angling up its clever; there is the added bonus of a level editor, which allows you to create diverse puzzles of your own, so that you can watch friends and relatives struggle.

Plotting may seem like just another puzzle game, but the sheer addictiveness is enough to give it an edge over many more derivative, puzzle games that are around at the moment.

Matt Evans

THE BARD'S BACK

Fans of the Bard's Tale series of fantasy role playing games will be pleased to learn that EA is about to launch a new addition to the series, Bard's Tale III. Trail of Fate contains more spells, more monsters and even more dangerous levels.

The story goes that the fabled city of Skara Brae has been left in ruins. As the townfolk celebrated your victory over the evil Maglor or Bard's Tale II has made, the mad god Targis, armed seeking revenge and reduced the town to rubble. Skara Brae is only the

first in a long line of cities which Targis has threatened to destroy.

Your job is to assemble a group of adventurers who will travel through this medieval world in search of Targis. During your travels you'll encounter monsters, magic and an assortment of associated medieval fantasy role playing things.

The game includes 64 dungeon levels and 7 different characters, with up to 500 monsters and 180 magic spells available.

Jason Hollam



With the Amiga's increasing importance in the multimedia market, software producers have been quick to produce packages to exploit the interest generated by the hypermedia type. MultiDisk VIVA system has been available for a number of months over the pond, but now it's available here - this country thanks to EA Softdisk/Worldead.

Viva is a hypermedia authoring system for the Amiga that is designed for the production of multi-media information systems. You give you control over text, graphics, video, sound, colour and animation, all done within a nice friendly mouse-based user interface. No multi-media system can claim to be truly multi-media unless it can do just that - control multiple information sources. Viva is capable of controlling video recorders, laser video disk players and a full range of other visual media devices.

Viva uses an icon-driven interface that is extremely easy to use. Through the use of a unique visual construction set, anyone can create complex multimedia applications with the click of a mouse (well, several clicks actually). Once you've produced your multimedia application, it can be saved out to a stand-alone file, therefore allowing Viva to be used for the production of commercial multimedia applications. For more, give Worldead a bell on 0726 05520.



DOSSING AROUND

A few weeks ago a copy of the latest version of DR-DOS arrived in the post, and I've now played with it enough to give a first opinion.

DR-DOS is Digital Research's version of MS-DOS, and claims to be 100 per cent compatible with Microsoft's product. Previous versions cloned this, but fell down often enough for the system to be limited to a few Far Eastern suppliers who bundled it with cheap clones because of its slightly lower price. With the latest version however, Digital Research has attempted to make DR-DOS 5.0 a significant improvement on the opposition.

It does feature a number of extended commands, and all

commands have a help option if you add /h, but where DR-DOS really comes into its own is in the realm of memory management.

If you have a 286 or 386 machine with some spare memory over the 640K, you can get DR-DOS to load itself into extended memory, disk buffers and other DOS work areas can also be shifted out of the way, leaving upwards of 630K free! This can be extended further if you have a VGA or Hercules display, and almost 700K of DOS-usable memory is possible.

So far we come across no compatibility problems at all, and DR-DOS seems an excellent alternative to MS-DOS for the memory hungry. DR-DOS costs \$130 from Digital Research on 0635 35304.

SETTING UP

One of the recent features of DR-DOS is its installation. Putting a new operating system on a machine is normally a frightening prospect, reformatting the hard disk is by no means unproblematic. With DR-DOS all you do is put the master disk in the drive and turn the computer on.

DR-DOS boots from the disk and automatically loads the installation routine, which asks you whether you want to maximize memory or speed, or balance the two. Having made your choice it takes you through the automatic boot and config files, it recommends, explaining each option and allowing you to alter any you don't like. Finally it stores MS-DOS from your hard disk and puts itself in its place.

A completely painless procedure.

Another product I've been looking at this week is similarly painless to install, the Microcrist Telnet adapter.

PAGE THE CEEFAX

The PC version of the Telnet adapter has been a while arriving, versions have been out for other computers for several years.

It consists of a half-length 50-pin card with an aerial socket, which you plug into a free slot, and a disk of software which you copy to your working disk. After telling a setup program what display and printer you have, typing TELETXT turns the PC into a Telnet terminal, capable of picking up CeeFax, Dracal and Afil.

I can see this device being a hit with stockmarket types with the latest share prices instantly available on their PC. I haven't yet looked it to see if it will run in a multi-tasking window under Windows 3.1, but I see no reason why it shouldn't.

You can write scripts for the program which will automatically go to certain CeeFax screens and download the last 10 disk, and they can also be set to do this at a specific time.

Perhaps more interesting though is the device driver. Microsoft provides which lets you write programs, in any language, which can access screens and download information. Share portfolio programs already exist for the ST which automatically keep track of your stocks, and PC versions will not be long coming. On a more down to earth level, horse racing and sports predictor programs could automatically keep themselves up to date.

The Telnet adapter costs £195 from Microcrist on 0703 593694.

PAN'S PEOPLE

My main computer is out of action till the moment, the strain of having dozens of pieces of new hardware and software installed seems finally to have killed it. So I went to the corner of the office where the newly arrived hardware is kept to see if I could find a laptop to borrow to do some writing. There were two machines there: a Sharp and a Panasonic.

The Sharp, reviewed in this issue, is as near to gorgeous as a PC can get. It weighs less than an IBM laptop, yet has a VGA display, a 286 processor and a hard disk. This tool is almost incredible when you pick the thing up, you simply can't believe that there's a disk in there. I was forced to save a file and hold my ear to the casing to prove to myself that the C drive wasn't just a RAM disk.

But as soon as the Technical Editor saw me looking at it he shook me away

BAD BLOOD

Origin • £34.99



'If the hammer back an attack, we're slag', 'best I'm not', said, 'at he's no good.' 'So why you're in slaggy with out the plain now, back in slaggy' a couple a few men with you cease with a building on your tail. 'Is left tail a bit'.

Origin has certainly taken a break from the fairytale world of the Ultima series with its latest release, Bad Blood takes place in a world dominated by nuclear holocaust, a world of 'tearing wastelands, ramshackle towns, ravaged cities and hidden underground complexes teeming with ferocious technology and mutated monsters'. Forget Lord British, here comes Mad Max and the Thunderdome.

Despite these differences, Bad Blood very obviously uses the technology introduced with Ultima III, although it is a much abbreviated form. Gone are the many attributes on which a character's performance depends, instead there is simply a bottle of water to indicate your state of health, once it's empty, you're dead.

It all goes to make Bad Blood a rather easier game to play, although there is still a very complex plot and an extremely intense world for you to explore. The plot unravels as you talk to the creators, mostly men's 'mutants' or 'humans' 'humans'. Start with a single 'bit' card, or asking for the latest news, and 4 you're lucky a Meg wants you that the creature has mentioned something new, and a new 'keyword' has appeared in the 'talk about' menu.

But it's the graphic system that really grabs the attention. The world may not be as big, but it is drawn in the same lavish detail - particularly in a VGA display. An excellent introduction to role playing games for those who find the scale of the Ultima series just a bit daunting.

Mark Nicholson

FAST COPYING

The COPY command must be one of the best reasons for using a graphical user interface. Once after how I try to copy a directory and get the response 'File not found', then discover I had typed 'COPY'. If I just tell the system key near the full stop anyway, there is a much easier command for shifting around whole disks or directories of files which also works considerably faster and doesn't involve any 'Y' or 'N'.

XCOPY copies everything in one specified directory to another. So:

XCOPY \\user \\vncopy
would copy all the files in the directory 'user' to the directory 'vncopy'. If you don't specify a directory to be copied to, MS-DOS assumes you want to copy to the current directory. So to copy all the files on a floppy to the current directory just type:

XCOPY *.
Another handy feature of XCOPY is the option to copy all of the subdirectories as well, with the /s option. So:

XCOPY * /s
will copy all the files on the disk to the current directory, even those tucked away in subdirectories on the floppy.

The XCOPY command is fast, because it doesn't read a file then write it, then read the next and write it like COPY does; instead it reads as many files into memory as it can and then writes the lot in one go. With a lot of small files this is considerably faster.

XCOPY is an internal command, so on a hard disk file system you'll need the MS-DOS disk to drive to use it. Hard disk users need to make sure that the directory with the MS-DOS files in it is the PATH statement in the autoexec.bat file. But:

PATH C:\WINDOWS
or whatever that directory is called. You can check by typing PATH at the C> prompt; a list of the directories in the path will be shown. You'll explain the PATH command in detail next week.

towards the Panasonic.

The Panasonic 350 is right at the other end of laptop computing. It's huge and heavy and not a lot of fun to carry any distance. The weight is added to by the separate battery pack and mouse adapter, only one of which can be slotted into the machine at a time.

But an getting it home I discovered that all that weight had been put in good use. For a start it shifts a bit - a reasonably rapid 400MB hard disk and a 330 processor lead to that its LCD VGA screen is not the best of its kind, but it offers every display option you could ask for, including going able to plug a ray VGA monitor to use some more colour. There aren't many desktop VGA systems which let you do that.

With a keyboard plugged in to the external socket, a mouse is one of the main parts and a colour monitor plugged in, it's possible to fold down the Panasonic's lid and use it as a fast desktop.

Also adding to the size and

weight is the full-size 16-bit expansion slot which will take any card you like.

All in all then the Panasonic is an extremely powerful and versatile machine, which only suffers in convenience to other laptops which can boot in size, but not in power.

The Panasonic 350 costs nearly £4,000 without the WLT, but there are cheaper variants. Panasonic is on 0344-853851.

SOME MISUNDERSTANDING

It happens that we get a bit confused with some press releases in the PC column a few issues back. We said that Bloc products were now being distributed by Software Technologies - not so! In fact a few end-line products are being cleared by Technologies, but Bloc is very much still being distributed by DL on 0983 864674. DL is the place to go for the latest versions of the handy FormDocs and FormFaxes utilities.

Stuart Anderson

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The Express Guide to Amiga essentials will take you through the best buys for your Amiga and help you plough through the seemingly infinite range of useful utilities and breathtaking games, so that you can get the most out of your all singing, all dancing computer.

WORD PROCESSORS

● PROTEXT

Amiga 0235 68369
£29.95

It's fast and easy to use - has a good spellchecker and even has a calculator built in for doing tedious sums. Text can be viewed in WYSIWYG mode too. Keyboard can be configured to execute a stream of commands at the press of a key.

- ▲ Word count, many block commands and calculator
- ▲ Powerful spellchecker
- ▲ Can work on two documents simultaneously

▼ Not beginner-friendly

● KIND WORDS

Amiga Centre Scotland 025-557 4262
£49.00

Produces the best printer output of any word processor on the Amiga thanks to special output modes which simulate near letter quality. Has lots of good printer drivers (it exports even the most simple of printers).

- ▲ Excellent printer output
- ▲ Graphics can be imported

▼ Lacks a word count unless you spell check

● SCRIBBLE

HB Marketing 0895 444433
£39.95

A simple (!!) use word processor with spell checker and mail merger. Refor-

mats text as you type. Although it lacks graphical functions, its simplicity makes it an excellent word processor.

- ▲ Simple to use
- ▲ Mail merge and spell checker

▼ Can't import graphics

● WORDPERFECT

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A hefty 500 page manual teaches you how to use WordPerfect. A huge spellchecker dictionary and a thesaurus add to the bundle. Can call up a command line interpreter from within the program.

- ▲ WordPerfect is used on many machines so it's easy if you're familiar with it

▼ Expensive overview and lacks graphical commands

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● SUPERPLAN

Precision 045-330 7146
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Comes complete with a tutorial disk to help get you started - all the functions you're likely to need in a spreadsheet and also has excellent graphics display which makes data more digestible.

- ▲ Macro language allows keyboard configuration
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▼ Requires 1MB of memory
▼ Hard to use because of poor use of menus

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● SUPERBASE 2

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Simple to use, even for a beginner. Data can be imported from other files easily. Excellent data validation and useful help messages can be included. Mail merge facilities.

- ▲ Excellent tutorial files
- ▲ Graphics can be included and saved with the database

▼ Not cheap

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Produces PostScript compatible files for use by laser printers and typesetting bureaus - can also produce colour separations. English, French and Spanish dictionaries in the spellchecker. Five magnifications including life size and 200 per cent. Probably the best and most sophisticated DTP package on the Amiga.

- ▲ PostScript compatible files
- ▲ Colour separations can be created
- ▲ Three dictionaries

▼ Requires 1MB of RAM
▼ Too dense strongly recommended

● SHAKESPEARE

Cowshed Ltd 0804-735 2111
£39

Clear and informative manual. Produces colour pages directly on colour printers. Has some problems with large documents so best used on single pages. Graphics can be imported and each retains its palette. PostScript compatible.

- ▲ Mail if you have a colour printer
- ▲ RT file input

▼ No magnify function
▼ PostScript output is only in grey scale
▼ Graphics can't be edited on the page

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- ▲ Includes powerful word processor - Keywords
- ▲ PostScript compatible
- ▲ Graphics capabilities in Pagesetter
- ▼ Font and hyphenation information not imported with text

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● CITY DESK

Practices 081 330 7166
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A very powerful DTP package, but suffers a little from unfriendliness. Style codes are imported when the text is. Includes a simple graphics editor which can be used to create or edit IFF files for use on the page.

✓ PostScript output is supported
✓ Text can be edited on the page

✓ Lacks a WIMP environment

● PAGESTREAM

Silica Systems 081 309 1111
£171.35

Text can be flowed around graphics in most DTPs, but PageStream has the edge in that respect - text can be flowed in many ways. Magnification is not limited to five sizes - you can work at virtually any magnification.

✓ Flexible text flowing
✓ Large and easy to edit spell check dictionary

✓ Difficult to produce colour separations

GRAPHICS

● PHOTON PAINT 2

Microvision 0703 703030
£89.95

Art package capable of producing HAM images. Comprehensive set of tools allowing re-sizing, flipping, rotation, bending stretching and much more.

✓ Wide range of tools for image manipulation

✓ But some are very slow to use

● DIGIPAIN 3

Neural/Practices 081 330 7166
£89.95

HAM art package with facility to create images up to 1024 by 1024 pixels - the only limitation being memory. Good text entry system which uses a buffer. Text is manipulated before it's put on screen as a brush-friendly interface between package and user.

✓ Good text manipulation
✓ Huge images possible

✓ No fill or airbrush
✓ Antialias magnify mode

● DELUXE PAINT III

Electronic Arts 0753 49442
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Excellent art package that allows use of full overscan and extra half-tone screens. Simple animations can be created too - very easy to do. Stereo mode shows you from accidentally anti-aliasing over the wrong part of the screen.

✓ Perspective fill
✓ Half-tone mode
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✓ 1 Mb required
✓ HAM art supported

● FANTAVISION

Domart 081 780 2232
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Uses polygons to create animated

objects and relies on tweening to create the illusion of movement. Full colour IFF files can be imported to make up the background scenery.

✓ Fast animated sequences that don't set up much memory
✓ One object can be easily transformed into another

✓ Objects are silhouettes

● MOVIE SETTER

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Uses a series of sprites to create animations which are more cartoon like in nature than Fantavision. Sprites can be brushes created with most art packages - they're IFF format. Storyboarding makes it easy to use and see what's going on. Animation can be played, re-wound and stepped through frame by frame.

✓ Minor changes to productions can be viewed instantly
✓ Sound is easily integrated

✓ Works best with 1Mb
✓ Lots up memory if not careful

● PIXMATE IMAGE PROCESSOR

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Allows pictures to be transformed from one form another - HAM can be reduced to 32 colour pictures for example. Images can be cleaned up, de-focused, squashed or stretched.

✓ Converts images from one format to another
✓ Wide range of cleaning options

✓ But who the hell does Pixmate do?

● X-CAD

Comore 0428 775048
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Very fast re-drawing of images. Has great potential in the range and quality of images that it can produce. Hardware requirements mean that you must be very serious about your CAD to justify buying it.

✓ Best CAD package available
✓ Fast
✓ Comprehensive

✓ Needs 2Mb
✓ Better with hard drive

● INTRO CAD

HB Marketing 0885 444433
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Extensive colouring routines enable realistic and detailed objects to be created. Easy to include text too. Ideal as an introduction to CAD.

✓ Simple to use and much cheaper than X-CAD
✓ Excellent results can be obtained with a bit of skill

✓ Not as comprehensive as other packages

● SCULPT 4D

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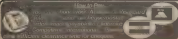
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A Script animate included in the price

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This is a 24-track sequencer with the last two tracks having a special purpose. Track 24 is used for backing chords and track 25 is monophonic and used to play the main melodies or lead lines. Very simple to use and loads of functions.

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A Easy to use

V Loads powerful features

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A Sound processor for sampling your samples

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● FUTURESOUND 500
Applied Vision (UK)
£79.95

Simple to use sound sampler with routines to use the samples in your own C or BASIC programs. Manual is easy to read, but may give novices a head time.

A Just plug in and away you go

A Provides for including samples in your programs

V Manual a little tricky for the beginner

● AMAS
Microdeal 0725 64020
£95.95

Sound can be digitised from a microphone or an amplified source which is useful in samplers. The results can be played across a mid keyboard too.

A Samples can be compressed
A MIDI ports included

V No facility for using samples in your own programs

● OPUS-1 MCL
Avalanche Software 081 940 0304
£39.95

A computer language designed specifically for musical composition. Can be used by programmers that lack instrument skill. Complex language, but powerful when learnt.

A Ideal for the programmer with little musical ability

V Complex language to learn
V Not cheap

GAMES

● INTERPHASE
Miramax 071-628 1454
£29.95

Fantastic 3D graphics and a Max Headroom style plot make Interphase a challenging and exciting game. Guide your girl friend through a multi-storey building and retrieve a vital computer disk. Lots to do and not much time to do it in.

● XENON 2
Miramax 071-628 1454
£24.95

The Stripes Brothers first produced Xenon which had all the qualities you could ask for in a shoot'em up. Xenon II takes the genre one step further to produce the best zap'em game of the year. Hordes of aliens and a multitude of boss on weapons to bring the evil Xenites II an end. Sound is as good as the graphics.

● STRIDER
US Gold 021 625 3348
£29.95

An excellent conversion of the Capcom arcade game that has the right mix of killing and thinking to provide a stunning game. As usual you can find extra weapons to help your quest. Beautiful graphics make the game look as good as it plays.

● WATERLOO
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War games don't have a huge following, but there are plenty of people out there to justify them. Waterloo has nice graphics and although not the smoothest war game it plays, it is challenging and will keep even the most battle-hardened of generals busy for many an anxious campaign.



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VIRUS

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Virus was originally written on the Archimedes and was thought impossible on any other machine. The Amiga proved them wrong. The too can export some wonderful graphics and create missions as you fly around worlds, zapping and fighting for survival.

DRAGONS' LAIR

Entertainment International 0368 541326
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It might seem expensive, but that's because it comes on six disks. Dragons' Lair was one of the first arcade games to use laser disc technology and its even more impressive when you realise that your Amiga does it with no extras - just its memory and good programming.

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A Very fast assembler
A Compatible with Decpac

Y Can't assemble to memory

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A Fast interpreted BASIC
A Structured language

Y Requires compiler to produce stand alone code

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A very fast compiled BASIC with a powerful text editor to make life easier. Instruction manual helps you through the tutorial programs. Can compile Amiga BASIC programs with no modification.

A Produces very fast code
A Compiled language

Y No interpreter - you must compile in between each modification to the program - which works fine

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C is the next best thing to assembly language when it comes to speed, and Lattice C is a very good implementation of C. Includes a powerful debugger for when things don't go right. Also has a powerful text editor for creating the code and two very handy manuals.

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A The best and fastest version of C

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A Crashbar and pen included
A Good alternative to mouse

Y Good expensive

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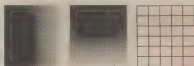
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▼ Software incomplete

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▲ Lots of software available to exploit Minigen

▲ Cheap

▼ Poor manual and introduction disk

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▲ Works with most Mac software

▼ Doesn't support hard disk... yet

▼ Need to purchase Mac ROMs too

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SPECTRUM games for sale including: Gold, Shrek, Brains and Rainbow Islands. Phone Kevin on (0266) 750121 for details.


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
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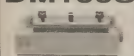
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I would like to get in touch with anyone 16-18 with an IBM PC or compatible. Michael Marshall, 48 Sunnyside Road, Hemeley, Kent, CT16 8LU.

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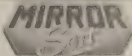
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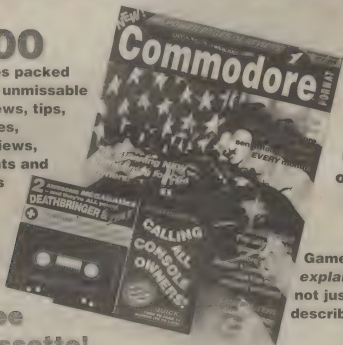
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as its assemblies, out down CAD packages and bits and pieces like tape header readers and the like. Many of the programs have been taken from the hallowed pages of that rather wonderful magazine *Antisat Action* (available from all good newsagents at the remarkably low price of £1.45). So it may be worthwhile if you missed out on the issue with that wonderful type-in, or maybe you just can't be bothered to type it in.

Header Reader will give you all that valuable information about the type of programs on a tape. It'll let you now things like file size, type, and whether it's a protected file or not. It'll even show you a graphical representation of where the program sits in memory.

Mouse will help it keep your program away from the prying eyes of Multi-face users. It's a subroutine that can be

tagged onto the end of your own programs, and detects the presence of the Multiface. If it finds one it simply crashes the machine, erasing all trace of the program from memory.

464 owners who are fed up with their machine not being able to run certain BASIC programs will like *Copypdf*. As you'd expect, the program emulates the *COPYDIPS* command that's only found on the 6128.

Azerty translates your CPC keyboard into French. Our continental cousins use a different keyboard layout to us, which can be a bit difficult to get used to. So if you use any foreign software, it could be just the fix you need. It

MORE PD

Every week this column informs you of some of the very best PD software around. However, if you're interested in

expanding your own collection, then where can you get more details of stuff to suit your machine?

Being a general column, I try to offer information on PD for as many machines as possible. Only a certain amount of space can be devoted to each specific machine. Future Publishing, who produce *Express* also publish many other titles, covering virtually every other computer around. Most have some kind of public domain section.

CPC owners will find *Antisat Action's* Free For All section very informative. Two whole pages are devoted to the subject every month. It has all the details of what's happening in the Amstrad PD scene. As well as regular reviews of the PD that's vital to your collection, Caroline Lamb, the writer behind the column, presents her own fortnight views.

If you're a 16-bit owner, then the magazines *57 Format* and *Amiga Format* may just be your cup of tea. As well as the several pages on our favourite subject, each issue has a free disk mounted on the cover. And, you've guessed it, there are PD programs a plenty for you to try out.

Taking of *Format*, a spanking brand new magazine is about to see the light of day. *Commodore Format* is about to become Britain's bestest, brightest

magazine for the Commodore C64. And editor Steve J has promised that PD will feature prominently in the new mag.

Business type people may find *PC Plus* and *8000 Plus* worth a look. Although neither has a regular PD section, they do cover it occasionally, sometimes running quite comprehensive articles on the subject. And, of course, as well as the public domain coverage in all these magazines, they're a darn good read too. ■

WHERE TO GO

Page One Public Domain, 46 Hilpert Avenue, Portliff, Newcastle, Staffs, ST5 8JZ. Page One are an Amiga public domain library, so take a page out of its book. Most of the disks are £2.50, whereas the licensors will set you back an extra pound.

Robot PD, 2 Trent Road, Oattham, Isle of Wight, PO1 9HF. Robot provides PD for your CPC. And what's more, it's pretty cheap stuff. Just send 45p for a cassette or disk full of all the latest PD, but remember to enclose a blank tape or disk and an SAE. Alternatively send it one hundred pence, and it'll supply the tape and postage.

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THE MOVING PICTURE 9

The Edinburgh Festival is the perfect place for the annual Amiga Animation Competition. It is the largest and most prestigious gathering of art and culture in the world, and so 'Amiga' is the mecca for every alternative and up-and-coming art form known to humankind.

Right at the fringe of the fringe was the 3rd Amiga Animation Competition staged, as usual, by The Amiga Centre Scotland. 36 competitors exhibited work that ranged from the ugly and crude to Eugene Messina's superb Main Video, the ultimate and obvious winner.

The judges were Andrew Ball, Cambridge's press and public relations manager; Donald Holwell, a freelance animator and lecturer in animation and illustration at Edinburgh College of Art; and Leslie Mitchell, a producer of corporate television programmes who uses several Amigas in his work.

The 11 prize-winning animations were chosen from

Last week saw the third annual Amiga Animation Festival, Brian Larkman was there and saw the winning graphics.

a surprisingly poor selection of entries presented on video and disk. The judges considered that most of the professional work – predominantly show-reels of corporate video – was on the whole rather boring and derivative; just how many more flying logos can we take?

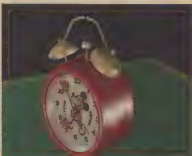
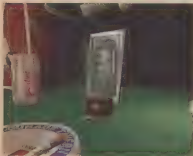
Still, considering the subject matter, this decision was rather harsh. Several of the companies concerned are groups of ex-art students or amateurs who are struggling to break into a cut-throat area where the big companies have experience and still produce boring material. Next year perhaps there will be a special classification for show-reels and corporate videos.

The amateur work was also rather disappointing,

showing an overall lack of imagination, even including one of the Deluxe Paint II tutorials. Maybe there were just not enough entries. Nevertheless the prize-winning animations show just what the Amiga can do.

Jason Gee's *Nature Calls* for example is a long unframed animation sequence derived from about 2,000 hand-produced line drawings on paper, digitised, line-tested and coloured in Deluxe Paint II, and recorded onto VHS video. This combination of traditional and computer techniques looks like being the only way that traditional animators will move over to computer animation. The struggles of Gee's dog to get the door opened for the 'call of nature' is accurately

AND THE WINNER IS... EUGENE MESSINA'S MAIN VIDEO



• A sequence from the winning animation, *Main Video* by Eugene Messina. The original pictures in the sequence were in HAM format; these have been simplified to 32 colours.

SHOW

observed and well animated. He won *Real 3D Pro* and *ImageLink*.

Like *Nature Calls*, Kate Karlsson's *Information About AIDS* is a traditional 'illustrated' animation executed in 2D using a computer. Nevertheless the subject has been dealt with in a unique way so that the action is enhanced rather than dictated by the computer techniques used. Karlsson won *Real 3D Beginner*, *Deluxe Video M* and *Deluxe Music*.

In contrast, *The Ford-Suze Run* by Scott Johnson is completely computer generated using *Scout/Animate 4D Jr*. It has a simple and rather boring theme – a police chase of a red Ferrari-like car – but the smooth, carefully choreographed movement of the vehicles and camera take it out of the ordinary.

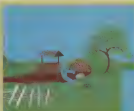
Far and away the best however is Eugene Messina's *Main Video*. He will receive an Amiga A3000. Again, this is completely computer generated using *Turbo Silver* and recorded in five second sections onto a domestic VHS recorder using a modulator. The plot and scene are really very simple, but the execution is so clever that a very strong atmosphere is evoked just with lighting and camera moves.

The scene is a desktop, illuminated fully by a green-glass shaded desk lamp with a bad connection – or is it an unknown electrical substance? Around the desk is just darkness.

The camera swings smoothly and almost lovingly around a series of mundane objects on the desk, beautifully modelled and texture-mapped by *Silver*: an ornately framed photograph, a Coke can, a glass of Coke, a Micky Mouse alarm clock, an solitary naked form in a pub. Suddenly a small UFO appears, hovers above several objects, absorbs or transmutes them, then disappears.

The other prize-winners were: Chris Blackmore with *Moonway* and *Recurve*; Chris Banks's *Zombie City*; Art McHardrick with *East Area*; W Mackay for *The Plug*; Adam Gill for his original ideas in *Tapestry*; Kevin King with *Aqua-Snoopy*; and Sharon Wilkerson for the only genuine funny animation in the competition, *Poll Tax Avoidance Lesson #1*. ■

THE RUNNERS-UP



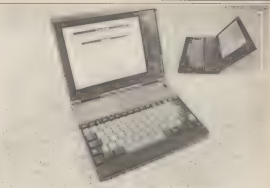
• Two scenes from W Mackay's *The Plug*, (right and below)



• *The Bayeux Tapestry* reproduced by Adam Gill in *Tapestry* (below). A still from Sharon Wilkerson's *Poll Tax Avoidance Lesson #1* (bottom left), Chris Banks's *Zombie City* (bottom centre) and Jason Gee's *Nature Calls* (bottom right)



TIME FOR A SHARP EXIT



• Sharp's tiny laptop: would you believe there was a hard disk in there?

...with a computer in your hand. Portable computing remains a dream for most people, even those owning 'portables', but Keith Pomfret tried out an amazing machine from Sharp which lets you work on the move.

The corner seat of a coach travelling at 70mph along the M4 is hardly the ideal place to review a computer, but the fact that this review was typed in that very place is testimony to the claim that the Sharp PC-6200 is truly portable.

The 6200 is a AT with a 80286 processor, 640K of RAM and a 20Mb hard drive. Yet it is smaller than a sheet of A4 paper and about as thin as a credit card. If the machine is to be used both in office and mobile, there are a series of expansions and peripherals from Sharp and third party suppliers that effectively turn it into a desktop AT.

A hinge along the rear reveals a perfectly usable keyboard of the fashion now often used in laptops. The keypad is embedded in the right-hand side of the traditional QWERTY layout and accessed by a special function key. The row of function keys isn't full sized but as they see less use than the main keyboard, this isn't a problem. For those who do a lot of numeric entry and control manage with the embedded keypad, there's a port for connection of a numeric keypad.

In the top half of the 'dashboard' is an LCD screen with VGA display and contrast, brightness and inverse controls provides a stable although sometimes dull display. With crisp almost paper white LCD displays currently available, there's no excuse for dull displays, especially not from a company called Sharp. The hinge allows the screen to be set at a comfortable angle and the backlighting can be set to the optimum level.

NO FLOPPY

The first thing that is readily noticeable is the lack of any floppy disk drive. Instead there is a tiny 2-inch 20Mb hard disk. When the review machine arrived, the only way to loading software was a good quality serial cable. A connectable floppy drive is available, but for the review commit was the order of the day.

The lack of any floppy drive was a little disconcert-

ing, but backing it up to the desk PC and using the supplied Laplink or the more elegant Fastwin soon had the necessary applications loaded. Anyone wanting to use copy protected software would need to invest in the optional floppy drive.

IN USE

The 6200 is heavy enough to use on the lap in a moving vehicle without making constant dives to the floor at every bump, but light enough to carry in the hand or a case. There isn't a carrying handle but the machine is light enough to be gripped in the hand. Unlike some of the current generation of notebook PCs, the 6200 will not fit in the pocket but this is a plus, leaving space for a decent sized keyboard.

On the desk, on a BR table on the train, and perched on the lap or a coach the keyboard was fine. The keys have a good response and aren't too close together to cause difficulty to a touch typist. The small cursor cluster is a little fiddly at first and doubles up as a Pg Up, Pg Dn, Home and End cluster, activated by the same function key that controls the numeric keypad. This key also brings the Num Lk, Scr Lk, Pnt Sc and F11/F12 keys into use. Dual function keys are a necessity in a computer as small as this but those which aren't accessible without activation aren't ones which would be used often in a hurried bout of touch typing.

Using a word processor, where there was a lot of contrast, the 6200's screen was excellent but in programs where the transformation from multi-colour to greyscale involved several colours of a similar hue, the display was difficult to read, especially in direct sunlight. This shouldn't be taken as a severe criticism, but I feel that a bit of tweaking by the manufacturer could improve the display quality. All other aspects of the display were good with a screen refresh rate quick enough to handle the animation of a railway simulation game.

After using the 6200 for 140 minutes or so, the re-charge battery pack was ready to cut in to take. The indicator gave ample time to save work before an enforced power down. The battery pack is removable but without

a spare pack, any work saved to the hard drive is effectively imprisoned until the mains adapter is attached.

The problem manifested itself when miles from home (and the charger) with urgent work on the machine. This feature means that either the charger has to be carried around, spare battery packs must be bought or military planning of trips and use must be indulged in.

NO BANDWAGON

The Sharp notebook computer is obviously the product of a well thought-out plan and not just an attempt to jump on the sub-laptop bandwagon.

This easy to understand manual works its way through the features available on the 6200, explains the master and Laplink, then sets aside a couple of chapters for the expansion of the system.

Sharp provides various routes of expansion, including extra battery packs, expansion units for add on PC cards, disk drive (3.5-inch and 5.25-inch), a numeric keypad, RAM card and CRT adapter.

In a surprising change from manufacturers' tendency to place head in sand when addressing third party peripherals, Sharp has included a chapter on the options available.

The PC-6200 is the centre of a system that allows true computing on the move yet can be used as the core of a desktop system. Its size and use and expansion potential make it the most desirable notebook on the market today. ■

PRICES

Sharp PC-6200	£2295
21-inch 25-line RGB screen	£240
OfficeMate	£80
Expansion for	£150
Battery pack	£110
Keyboard	£60
Sharp 3.5-inch 20MB disk	

Hacking is now illegal, but it remains unclear just how the police are going to catch anyone who breaks the new law. Express talked to the police and to a hacker about the new act to discover whether the dodgy side of the comms world can sleep sound in their beds...

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and the Commons, in this present Parliament assembled, and by the authority of the same, as follows:

A person is guilty of an offence if he causes a computer to perform any function with intent to secure access to any program or data held on any computer and if he knows he intends to secure it unauthorised.

A person guilty of an offence under this section shall be liable on summary conviction to imprisonment for a term not exceeding six months...

So starts the Computer Misuse Act 1990, finally rendering hacking illegal. But bloody, with the act in force for only a few days, there are those who claim the act will be unworkable and the police need more powers in order to catch those responsible.

To find out whether or not the act will stamp out hacking, or prove to be lip service to the computer security lobby, Express talked to a policeman in the Metropolitan Police's computer crime squad, and to an accomplished hacker turned computer consultant.

THE FRAUD SQUAD

We met Detective Sergeant Donovan in the Fraud Squad's offices in London.

Q. There is a reluctance on the part of many of the subjects and victims of computer fraud to actually expose those frauds, certainly in some of the big finance houses, where they fear creating a lack of confidence. What would you say about this?

A. We've had no concrete evidence to that effect, but I expect that to be very likely, yes.

Q. How will you ensure a flow of information?

A. Well, as with any other crime, it's not our job to go out looking for crimes; it is for individuals to report crimes if they choose to. Just the same as somebody who is raped, they don't have to report it if they don't want to.

Q. But surely the law enforcement agencies have a very considerable interest where absolutely massive forms of fraud are concerned?

A. There is an awful lot of hype that goes around about

computer fraud, but we have a unit here who deal entirely with computer crime and the figures that are reported to us do not suggest that there are millions of pounds involved.

Q. How many officers do you have in your unit?

A. Four, a Detective Inspector, myself, a Detective Sergeant, and two Detective Constables.

Q. Detective Inspector is the third lowest rank in the Metropolitan Police or any police force, is that right?

A. Er, yes.

There is a wide range of hardware and software and no one person can be an expert in all of those matters, least of all a police officer. But what a police officer is an expert in is the investigation of crime.

Q. Is this a measure of the attitude of the police towards computer crime?

A. No. The computer crime unit is part of the fraud squad and the fraud squad deals with complex or high value frauds. If frauds are investigated here they involve a lot of money, so if a half a million pound crime was reported here, it would not be considered a substantial fraud and that might well be investigated by a Detective Constable.

Q. How long has your unit been in existence?

A. Since 1985.

Q. What training have your officers undergone?

A. The Detective Inspector who first came here went to an FBI Academy.

Q. Are any of them computer science graduates?

A. No, but all of the officers have been to the Bramshill National Police Staff college and have undergone a course there.

Q. That only lasts four weeks, doesn't it?

A. Yes.

Q. Do you think that that is adequate?

A. It is sufficient to give officers a starter for ten in understanding technology.

There is a wide range of hardware and software and no one person can be an expert in all of those matters, least of all a police officer. But what a police officer is an expert in is the investigation of crime, and what he needs from a computer course is a background so that he can understand the technology.

Q. How many officers attend that course at any one go?

A. The course now caters for 12 officers with three courses running a year.

Q. How do the fraud squads in other constabularies respond to reported incidents of computer crime if they don't have a computer fraud unit?

A. Your question is better directed at these forces, but what I do know is that at least one officer in every police force has been trained on the Bramshill College course and that officer has normally been on the fraud squad. So they do have an officer who is trained.

Q. In the past constabularies would call upon Scotland Yard for an experienced murder investigator to go to their constabulary and pursue the murderer. Do you think this will happen in the case of computer fraud?

A. Other forces often contact us for advice, and we give advice, but you mustn't blow this out of proportion, this computer crime and make it out to be something so terribly terribly difficult. Of course it's complex and of course it's technical but the officer does have available to him a number of people throughout the country who are experts in various computer systems.

HOW WILL THEY CATCH THE HACKERS?

For example, if we were to go to the scene of the crime where a particular computer hardware was used then we might contact an expert in relation to that particular hardware. Police officers are not computer operators or experts in that field, only the investigation. We use the expertise of others to give technical evidence in court.

Q. Do you think therefore it might lead to some constabularies bringing in private security companies?

A. There are very few private security companies that have the experts. Lots of people set themselves up as computer consultants but the first thing we do is ask what qualifications they have, and there are many that have no qualifications whatsoever. For an expert to be an expert in court he has to have qualifications in his subject. So so, I do not see our police forces bringing in private security companies.

Q. The training received doesn't sound very much in light of the technical background of the people who have been involved in computer fraud. You are all experienced CID officers aren't you?

A. Yes.

Q. Do your officers move around to other parts of the police force?

A. Yes, but having said that the force is looking towards setting up a core posting. That is not force policy at the moment, but all of the officers on the computer crime unit have been here in excess of what is considered the norm for a specialised operation posting – three years.

Q. Do the experiences you have picked up make you invaluable in this new field of crime?

A. His, ha, ha. I would like to think we were invaluable but I don't think anybody is irreplaceable. It is a specialist unit within a specialist organisation, because by its very nature the fraud squad is considered to be a specialist operation. We are to my knowledge the only unit in the country that has such a computer crime unit.

Q. There are no others?

A. I don't think so.

Q. Is computer crime on the increase? What figures are there?

A. There are no figures on computer crime. Until now there has been no legislation that deals with computer crime, so the person responsible has been charged with criminal damage – therefore the statistics show that an offence of criminal damage has been committed. The statistics do not show that that was a computer crime, but once the Computer Misuse Act becomes enforced then figures will be available.

Q. Previously offences relating to computer fraud were dealt with under a number of statutes, for instance the Theft Act?

Some have been embarrassed by the fact that they have been the victim, but nonetheless they have still reported the crime. Presumably there are others where embarrassment has stopped them from reporting the crime.

A. Well Section 13 is obtaining property by deception, but it would not be usual to charge somebody with that because you cannot in law deceive a machine.

Q. So the new act has come about because of the failure of these previous acts, would you say?

A. No, I think that the new law has come about because there has not been a suitable law to deal with cases of unauthorised access.

Q. I wanted to ask you about an unusual element of computer misuse and it relates to the police force themselves. You are probably aware that in the past

some police officers have been convicted under the Official Secrets Act for giving out information stored in the Central Police Computer?

A. Yes.

Q. Can you confirm that the new act would cover an officer, for instance, altering information about a criminal's record within the Central Police Computer?

A. If the alteration that he made was a modification to the contents of that computer, and the modification was unauthorised, then he would be guilty of an offence.

Q. So whereas previously they have been convicted under the Official Secrets Act they would now be dealt with under the new Computer Misuse Act?

A. Yes, but there are always cases of altering information on computers that could have been dealt with under other statutes anyway.

Q. Is all computer fraud insider crime, is it the disgruntled employee or the manager with esoteric knowledge of how his particular company works, or is there a dedicated bunch of criminal hackers who will invade someone's system?

A. There are certainly people who hack into other computer systems, yes, and equally there are disgruntled employees, so both aspects are covered.

Q. Are there more hackers or more employees?

A. It's a bit difficult to answer because hitherto hacking itself has not been a criminal offence. But for a number of years, hacking has been known to our unit to be going on.

Q. Will you find the new act workable?

A. We've got to wait and see. It is brand new legislation and it is not really possible to say whether or not it is going to work until time has told us.

Q. Is it possible to give us a scenario of a typical investigation in brief?

A. Not really because to two investigators are the same.

I suppose it would be common for somebody to sit at home with their own computer and modem and gain access to somebody else's computer.

Q. And how would you pursue that particular crime?

A. Well the same way that we would any other crime. You could perhaps locate that with somebody going in unauthorised access to somebody's house and staying overnight. Then there is a procedure that the officer goes through in that investigation. I'm sure you wouldn't expect me to go into the technical aspect of how we actually detect offenders.

Q. Some areas of fraud involve very considerable sums of money. They are usually perpetrated on banks or building societies. Are they reluctant to give you access to their computers and things of this kind?

A. No. Those that I do have reported crimes have been most helpful in assisting us with the investigation.

Q. There has never been any fear on their part that to expose their particular systems to you?

A. Some have been embarrassed by the fact that they have been the victim, but nonetheless they have still reported the crime. Presumably there are others where embarrassment has stopped them from reporting the crime.

Q. In America a number of law enforcement agencies have turned around hackers where they have discovered somebody who has penetrated their systems. Instead of arresting and charging them

they have used them to give guidance and education, if you like, to the enforcement agencies on how they perpetrated particular crimes. Have you any experience of that here?

A. In my experience with the United States authorities people who have committed crimes have been prosecuted. As in all cases in all police forces throughout the world there are people who give information to the police about the activities of others and they may themselves be hackers or who have been hackers in the past. Perhaps you can tell me of somebody who is actively helping that the police are not prosecuting and are simply giving them immunity in order to get information?

Q. Certainly I know of a number of cases in the United States where this has occurred, where they have actually put together a team of hackers. They are used by the police to penetrate systems and to give guidance and education to their officers who are involved in the same line of work as yourself. I know certainly of some cases in this country where hackers have been detected by private companies and have been used by those private companies to explain to them how they have cheated and defrauded them and have done so on the basis of non prosecution.

A. Well that may be true because simple hacking has hitherto not been an offence. Now it is perhaps companies will take a different attitude.

Q. I think I'm right in saying that the police themselves could not offer immunity but, the office of the Attorney General, or the Director of Public Prosecution, or the Crown Prosecution Service might be able to do so.

A. That's right.

Q. Could you perhaps foresee a situation in the future where it might happen.

A. It would be very rare for a person to be given immunity from prosecution for an offence that he has committed unless his evidence was going to be extremely valuable in a subsequent prosecution. The immunity would only relate to the particular offence that had been committed it would not relate to offences committed in the future.

Q. What are your views of the penalties under the new act?

A. The police do not normally involve themselves with the penalties, because the penalties are really nothing to do with the police.

It is Parliament who creates the laws and Parliament who set the penalties.

Q. Do you consider them sufficient to deter?

A. Well there is a maximum sentence of five years for some of the offences - that's quite a substantial term of imprisonment. If somebody is given a conditional discharge, when perhaps they should have received a

BIOGRAPHY OF A HACKER

Myself: Although not a hacker, I am a security and data communications officer. I am a light, happy-chinned, middle-aged man with a shaved head. I am a computer and network security specialist and have been in the industry for 10 years.

My career has been in the security and communications industry. I have been in the industry for 10 years.

During my career, I have been involved in many projects. I have been involved in many projects. I have been involved in many projects.

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higher sentence, than the prosecuting authority can now appeal.

Q. Would you prefer stronger powers for, say, phone tapping?

A. We are not allowed to tap telephones under the provisions of the new act.

Q. The police have always been empowered to approach the Home Secretary and ask for interceptions on telephone

A. For serious crimes.

Q. Emma Nicholson intends to add new clauses to the Criminal Justice Bill. What improvements to the current act would you like to see included in them?

A. The Criminal Justice Bill does not relate to any specific offence. It is vehicle for introducing new powers to an already existing act or indeed to create new statutes.

I think that it is too early to say at the moment whether the Computer Misuse Act will be enforceable or not. I do envisage some difficulties in its enforcement but I think in fairness we will have to wait and see how

we get on. If it's not then we can attempt to seek additional powers.

Q. So, after the due passage of time, it could be appropriate to see if additional police powers were necessary?

A. Yes, certainly one of the things we would be looking at closely is to see if the powers that we do have at the moment are sufficient to enforce the act properly.

Q. How would you go about bringing a hacker to justice who is outside your jurisdiction? Someone hacking in from the States or the Continent or something.

A. The act is quite clear on that problem of jurisdiction. It is no longer a problem. If the victim is in this country or the hacker is in this country attacking somewhere abroad, then jurisdiction lies in the United Kingdom.

Q. But how would you bring him to justice?

A. We would attempt to extradite him.

Q. Is there a danger from terrorism from computer misuse?

A. There must be a danger of terrorist activities with the use of a computer yes.

Q. Do you have any experience of this for instance?

A. Not on our unit, no.

Q. Does the anti-terrorist unit liaise with you over any particular matters?

A. I think that is a question you should put to the anti-terrorist unit.

Q. How do you keep yourself up-to-date?

A. Homework, basically.

Q. Do you subscribe to journals?

A. Yes. There are a number of organisations that send us details of modern equipment that is coming out, equally we read magazines, newspapers.

We have a very large number of contacts throughout the IT industry in all sorts of fields, who we regularly communicate with.

We are asked to give presentations on computer crime and make contact with people, so it is a constant learning game. ■

THE HACKER'S REPLY

Q. What do you reckon to the Computer Misuse Act?

A. There are four policemen in the whole of the Met whose task it is to look for computer fraud. The regional forces only have a couple of bobbies seconded to that sort of work and none of them know a byte from a blunderbus.

To give it perspective, imagine a city the size of Birmingham with two policemen responsible for policing car theft. It's enough to send you running down to B&Q for a cordless drill isn't it? (Cordless drills are car thieves' current tool.)

Q. What percentage of hacking will the police stop?

A. They'll pick up a few low moulted amateurs and publicity seekers, but no-one who matters. Until the companies and institutions get over the embarrassment factor and start reporting the crime nothing will happen.

The police will only move if a crime is notified. With Austin and his three chums covering the entire Met, they don't have much time to go looking for it.

Q. People are regularly getting caught for missing about with JANET (Joint Academic Network) and the rest. Doesn't this show that awareness by systems managers is on the increase?

A. Let's get this straight. JANET is a worm. It's a system designed to be accessed by students and other pusillifera like forms and as such is about as secure as a paranoid schizoid. Only an amateur would break into a place that you can walk through the door of anyway.

The real systems don't have helpful log ins, normal baud rates and expected protocols. The majority of places worth seeing couldn't be accessed from a standard modem and phone line. A lot of the interesting stuff lives on private phone lines and before you can look at it you

need to 'scan the line' to find out how it's being sent.

At this point, he opened his briefcase and revealed a comprehensive 'computer security kit' consisting of a baby laptop, miniature modem, cell phone, oscilloscope, antenna, fax machine and assorted diagnostic tools. He gestured at the open case.

That's insured for over £5,000 and it's the absolute minimum that a professional can get by with. But it's still like a car without an engine. You need to know what computer, what system and most important you need on the ground intelligence to operate.

Q. Does the prospect of being put in prison worry you?

A. Why? If I jump on the ferry at Newcastle, dial into a system on my cell phone, spend a couple of hours downloading information to a computer, then get off at Dispo, how are Austin and his two going to catch me?

The only way they'll catch me is when I'm doing the research before the entry. Then it's not a case of logging on to anywhere, more a case of paying a visit and there were already perfectly serviceable laws to stop that anyway.

Q. What do you see as the far reaching effects of the new law?

A. I think that the police will have shot themselves in the foot by surrounding the new act.

There's an old saying about glass houses and stones and after all one of the most commonly perceived computer misuses is of the police central criminal computer.

Q. Would you like to enlarge on that?

A. Not really.

Q. It's a serious allegation which ought to be substantiated.

A. I'm not in the business of biting a hand that can potentially feed me.

Q. Do you know of misuse of police computers?

A. It depends what you call misuse. A company taking on security guards may very well feel that it is a good idea to get a local friendly police officer to run a few applicants through the computer to weed out the wicked.

It might even help the police in the long run. They'd have less villains on their patch.

Q. Do you know that this abuse goes on?

A. Change the subject.

Q. What about insider hacking.

A. Disgruntled employees have been tapped for info by rival firms, but a professional would never use one. Why pay a man to make a mess of a job that you can do elegantly yourself?

Q. If you don't work at a firm, how can you be an insider?

A. If you know enough about a system it doesn't take too long to get what you want. The biggest companies are easiest. No-one can know everyone. You can wander around large sites and buildings for so long without getting challenged that people get to know you. I've even played for a company during team sops. I do miss subsidised canteens.

Q. Don't you do that any more?

A. I don't need to. I'm well known enough to pick my work. I like the jobs that have me on the inside working out, it's less risk although some of the more active contracts are well paid.

Q. What's an active contract?

A. A firm might bring you in to tighten up on their security with the offer of a substantial contract. That's only a taste to try you out. They are paranoid about people hiding their system, but will rub their hands with glee if your intelligence brings them info from their competitors.

Q. What about the geographical implications of the latest act?

A. It makes it all unworkable. If I hack into a place in Oban from Cornwall, how long will it take the Oban coppers to mobilise the Cornish police and get me lifted even if they know I'm in immediately I log on?

Cell phones make it easier and the availability of cross continental phone lines make it a doddle. If I hack from Lichfield what can they do?

Q. Won't Interpol help?

A. It helps if you understand that Interpol is essentially a bureau not a task force. It is a shared bureau that police forces in different countries can use for intelligence, but on its own it has no teeth and is slow and unwieldy. And it isn't invulnerable from hacking.

Q. Do the police offer amnesty in return for help?

A. Not that I know of. That wouldn't be the British way would it?

Q. In a sentence, can you sum up the effects of the new act?

A. It is a piece of legal crap that will catch a few innocents and without monitoring every telephone exchange they're no chance of even getting anyone or misuses.

Q. How much do you earn out of this game?

A. A lot. Over £30K in the last year, but half of that was cash. I only worked about 20 weeks to get that.

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TECH TIPS

Does your PC keep packing up? Is your Amiga less than ideal? Should you get ST or the palatine one again? Write to Tech Tips, Express, 25 Abchurch Lane, London EC4N 3DF. Send your correspondence to Tech Tips, Express, 25 Abchurch Lane, London EC4N 3DF.

HELP! New life for old

I have a US model 2-year-old Datamedia Corporation Terabyte machine (Model 1700 T16) with steel case, motherboard, PS2, modem and video cards, and a standard off-hole at the front for a floppy disk drive. I think it was junked by a city dealing room.

My question: Can I make a computer out of it?

P. Sinden, London

Sounds like a lovely piece of kit, but not something for which I have the technical manual lying around the office. My experience of people's attempts to extract life from second-hand dedicated kit is that it rarely works. Far better to

1) Offer it to a collector (yes, they do exist).

2) Cannibalise it. Many a good CRT RAM board etc has come from an old machine.

3) If you have your heart set on using it, write to the company who manufactured it for specifications and help, or to one who still uses them.

The simplest project to undertake that involves the sort of kit that you possess is a terminal for commits. Many ex-corporate computers find a second life welded to a modem.

TIP! Biggest bigot

In reply to A Dates' query in Express III regarding a software package that will allow Russian and English characters, the reply is very simple:

1. Sell the Amiga
2. Buy an ST
3. Buy Signum II with the relevant fonts

Being an Amiga bigot you will no doubt not print this. Having used both, unlike most of the morose in the "my computer is better than yours debate", I still prefer the ST. P. Dates, Derby

And you're entitled to your own opinion too. You have targeted an area in which the ST outshines the Amiga, unless of course any of our other readers know differently?

For the record, I am not an Amiga

bigot, preferring the Apple Macintosh as a machine to work on, the Amiga and PC for recreation and my trusty Apricot F1 and Amstrad CPC for comics. I have to admit that an Archimedes is the machine to which I aspire though.

HELP! Memories

A while back, a guy wrote into Express saying his STE coped with 2.5Mb by mixing the SMM modules and, in some adverts and the Atari manual, they say that configuration is impossible. Which is true?

Geoffrey Chen, Kingston upon Thames

The wheateads on our sister magazine ST Forum confirm that although it is possible to do, it involves patching the operating system to "fool" the STE.

It's the sort of soldering job and pliers project that we wouldn't recommend to anyone who had to ask how it's done.

HELP! Lending library

Thank you for providing me with a brilliant magazine! I am writing to you with a few questions about the Public Domain (PD).

1) My friend and I are about to start up an Amiga PD library and we were wondering if you could let us if it would be OK for us to ask customers to provide their own disks until we get going.

2) We are going to charge around 10pence per program/disk. This does not include the disk (as stated above) but does include plug and other minor charges.

3) Which do you think sells the best, demos, games or utilities?

PS. Please keep up the good work on the mag!

R. Donaghy, Strabane, Co Tyrone

There are so many established Amiga PD libraries already that you'd have to offer something special to catch the attention of the discerning buyer. Many current libraries have thousands of high quality disks and huge advertising budgets. It's help sell their wares.

Warnings over, you can ask people to supply disks but you may find them more willing to go to libraries where this forms part of the service.

You cannot charge for PD software, only for the copying and postage. If you sell it, you are breaking the conditions assigned by the author when it was placed in the public domain.

All PD sells well as long as it's high quality and original. You wouldn't find many sales for a tractor generator as they're common as houseflies but a good shield-iron up, utility or demo would probably be popular. The other problem you would face as a PD library is that as PD software can be copied by anyone, any original program would soon end up in other libraries.

Talk to one of the more popular PD libraries, such as George Thompson Services or Seventeen Bit. I'm sure that they will want you of the many pitfalls at this line of business.

HELP! Single driver

Please help! My time in front of my computer is at an end at the moment. I have a Tandy 1000EX with one disk drive. The problem is using programs that require the loading of two disks. After loading the first disk and attempting to load the second, the screen either goes blank or the message RUN TIME ERROR appears. Please please help! Gordon Mackie, Leicestershire, File

A phone call to Tandy confirmed that the only sure way of curing the problem is to weld another drive on externally. Your manual should give you the pin configuration to allow you to have a lead made up for a proprietary drive. If you want to source the drive from Tandy, you could give its parts back-up line a ring or even drop them a line.

The phone number and address is: Tandy National Parts, Bladen Road, Wetherby, Telephone 021-956 6101.

HELP! Membrane dead

I bought a Sinclair QL three years ago to learn to program in 68000 machine language, but after several fruitless months of trying to find a 68000 assembler I gave up and banished the QL to the loft. I recently found myself in need of a word processor and, remembering that the QL

came with one in the form of Quil, I dug it out of the loft. However it seems to have developed a fault in the keyboard because when I type, it produces garbage. Also my copy of Quil has died.

Could you tell me where I could get the keyboard fixed (if I think it's the membrane that's died) and how much it would roughly cost? Where could I get another copy of Quil from? Also could I convert the QL to a Star LC-10? David Froggatt, Sheffield

0753 888888 is the magic number that you need to sort out all problems of a QL nature. The company in question is EEC and boss Bill Richardson is the acknowledged guru of Sinclair's 8/32 bit baby. It is possible to weld the computer in question to the Star Printer and the good people at EEC will run a copy of Quil to ground for you although they may recommend a better word processor.

ADVICE! ARM v TT

You might like to point out to your colleagues in the news department of Express, that an Arc equipped with an 386MHz ARM 3 for a FOX, that is an Acorn R200 or R225 could easily surpass Atari's TL albeit at a greater price than the R200 arrives which were recently announced. Further, you might like to tell them that even if Atari's 32MHz TL is faster than 48MHz ARM 3 based Archimedes then the power-price ratio is still won hands down by the A386.

How about a plug for OC's Laser Direct printer? C. Esson, Leamington Spa

I might like to point it out but it seems that you've done it for me. As for the plug, I thought that particular printer had one already fitted.

It's true that the Unix Archives often get forgotten about. There are so many machines chasing that "budget high-end" market that you have to ask who it is buying them. Do you know anyone with a TT, Amiga 3000, R200 or even the new 12M RISC machine? I thought not, still they are good for status swagging.

■ The SAM Coupé — desirable machine or lemon?

More of your Coupé quips and queries.

Is the disk controller in my Coupé peculiar to the SAM, or is it a generic device that I can get information about from a third party? I want to utilise a couple of 5.25-inch DS/DD drives that I have spare, (MGT doesn't answer the phone any more).

The controller is the VL-1732-02. It is a well documented and off used disk controller and, as it was originally designed as a 5.25-inch drive controller, you shouldn't have too much trouble persuading it to talk to your drives.

The way that the Coupé is designed will allow you to connect straight in through the slots designed for the disk drives and run your drive cables back out under the keyboard without any modification.

VL-1732-02 pinouts

1	Chip select
2	read/write
3	Address 0
4	Address 1
5-12	Data access lines D-7
13	Master Reset
14	Ground
15	Power (+5V)
16	Step
17	Direction
18	Clock
19	Read Data
20	Motor On
21	Write Data
22	Track 00
24	Index Pulse
25	Write Protect
26	Double density enable
27	Data request
28	Interrupt request

Alan Miles and Bruce Gordon stink. Talk about abandoning a sinking ship and then selling lifeboats to the passengers. Where can I get an assembler for the Coupé? I suppose we'll have to develop our own software and carry out guarantee work next.

You can get an assembler from SAM Computers Ltd at the address given elsewhere on this page. As for software development, Engines Variations has pledged support for the machine and, even as I write, several titles are under development. There's also the Spectrum emulator, and SAM Computers can arrange guarantee work.

How do I define a numeric variable in SAM BASIC? I've tried using the conventional ways (as in other dialects of BASIC) but

have drawn a blank. What is the format and how many characters long may it be?

I'm sure MGT gets pleasure from doing the unexpected. A numeric variable in SAM BASIC can be up to 38 characters long but must start with a letter. After the start letter, the remaining spaces can be made up of letters, underlines and spaces.

I read somewhere that command codes can be accessed to provide most of BASIC's functions. I know how to do this but have no record of which codes tie up with which commands. Can you enlighten me?

According to the technical manual, the codes are as follows:

3A	SIN
3B	COS
3C	TAN
3D	ASN
3E	ACS
3F	ATN
4F	LOGN
40	EXP
41	ABS
42	SGN
43	SCR
44	INT
45	USR
46	IN
47	PEEK
48	DPEEK
49	DVAR
4A	SWR
4B	BUTTON
4C	EOF
4D	PTR
4E	Reserved
4F	UDG
50	NUMBER
51	LEN
52	CODE
53	WLS
54	WAL
55	TRUNC
56	CHR\$
57	STR\$
58	BIN\$
59	HEX\$
5A	USR\$
5B	INKEY\$
5C	NOT
5D	NEGATE

SAM peripherals seem to be thin on the ground at the moment. With MGT not existing anymore, where can I get support for my Coupé?

A phone call to Alan Miles revealed that the mailing address for SAM Computers Ltd is: 3 Cleveland Court, Uplands, Swanssea SA2 0RG.

Miles confirmed that SAM support has taken off in fine order and it's receiving over 100 orders a day. This has enabled it to take on staff and, as well as supporting the existing Coupé owners, Miles said that new owners

(post MGT based) were showing support for the product by buying it.

Russ Meyer of distributor Hollingsworth Meyers agreed, saying that Coupés were selling well and that there was support for the machine.

Is there a published table of the Coupé memory map with the approximate memory locations?

The map that you want is on page 27 of the SAM technical manual and looks something like this:

FFFF	RGM1 or program, variables or screen
0000	Program, variables or screen
0680	Start of channels
0C8C	System variables
0A00	Keyboard table
088C	Def key buffer
0580	Line interrupt colour table
0680	Paralle table
0550	UDG patterns
0540	Character patterns
0510	CHARS
0510	Page allocation
0510	ALLOCAT
050F	Buffer
0400	Machine stack/Floating point calculator stack
0400	STKBOT
040C	FARLDRI buffer
0480	Tap headers
0480	BASIC stack
0400	HEAPST

What are the SAM disk drive pin connections for?

The drives in the SAM are Citizen CGDC drives which the SAM disk operating system formats to 780K. The twin 32-way Euroconnectors inside the machine are wired as follows:

1A+0V	15+WR
2A+0V	25+0R
3A+0V	35+A1
4A+0V	45+D0
5A+0V	55+D1
6A+0V	65+D2
7A+0V	75+D3
8A+0V	85+D4
9A+0V	95+D5
10A+0V	105+D6
11A+0V	115+D7
12A+0V	125+D8MT
13A+0V	135+RST
14A+0V	145+Not connected
15A+0V	155+A2
16A+0V	165+Disk 1 or Disk 2

Drive 1 connection is to the left and Drive 2 to the right as you sit at the keyboard.

Does MIDI work on the Coupé?

We reported an alleged problem with MIDI on the Coupé some time ago. To date we have only seen a Coupé running a very simple short sequence

from a test program. This was played back on a Yamaha PSS series keyboard and benefited from the 'automatic' play facilities of the PSS. Other comments in the computer press saying that the Coupé is MIDI compatible were based on the same demonstration and could be misleading.

In simple terms, to qualify as a MIDI computer there must be software that is able to polyphonically sequence, edit and take on board the data from performance and expression controllers. MIDI is a 16-channel system and to take advantage of it properly, you must be able to assign voices to those channels.

As soon as we are able to obtain a true MIDI sequencer for the Coupé, we'll report further. In the meantime, as there is no proper software, the answer still has to be no, but at least we know that the Coupé is able to squirt data out of the MIDI port now!

We still await a working network for the Coupé too. All those lovely networking ports and no other computers to talk to... not fat.

Is there a mouse or lightpen available for the Coupé? (both were promised).

No. The mouse has been shelved for the time being but the lightpen may yet surface again.

In my friend's mag I read that MGT (the people who make the Coupé) had kicked it. I was at the time considering buying a Coupé. Now I don't know whether to go for another computer or buy a Coupé. If I get a Coupé, will it be able to get the hardware/software for it? Also it's been stated it runs 70 per cent of Spectrum software. Does this include disks? Also, how do you tell which games work and which don't?

Below, courtesy of Ettington Computers in Spennythorpe (a useful source of SAM products), are some of the tape games that work.

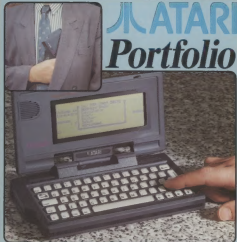
A full and comprehensive list of tape and disk games doesn't seem to exist as yet — unless anyone out there knows differently. Pub Thru, Buggy Boy, Captain Blood, Barbarian, Impassable, Rainbow Islands, Evil Rising, Leadboard, Spectator, Thundercat, Kenny Galgish, Knight Force, Captain Fizz, Scramble Sprk, Earthlight, Xybots, Hong Kong Phooey, Thomas the Tank Engine, Punch and Judy, Jungle Warlord, Dinosaur Simulator, American Turbo King, Billy the Kid, Napoleon the Warrior, Bronx Street Cap, Seta, F16, Wonderboy, Tempest, Spy Vs Spy A, Hopping Mad, Impossible Mission, Count Duckula, Pro Golf Simulator, Microhouse, Monte Carlo Casino, Tropic.

The alignment of the tape heads is critical to the loading of some games, as is the volume level, so be prepared to try out various settings. ■

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FOR ONLY **£249** INC VAT

SPECIFICATION

- Processor: Intel 80C86 at 4.95MHz.
- Operating System: Compatible with MS-DOS 2.11.
- Internal ROM: 256K containing BIOS, operating system and applications software.
- RAM: 128K with an internal RAM disk, configurable to 8K. Externally expandable to 544K RAM.
- Keyboard: 60 keys, QWERTY, plus 16 function keys. Optional key click.
- Serial Interface: Extended IBM ASCII (255 characters).
- Memory Storage: credit card sized memory cards (32K or 64K or 128K RAM).
- Display: Graphics LCD, advanced technology, VGA compatible, 40 columns x 8 lines, 702 x 84 pixels (with the option to window in 160 80 x 16 character display).
- Peripherals: 80 pin expansion bus to take serial and parallel cards and memory expansion units.
- Size: 8" x 4" x 1" 3/16" (205mm x 105mm x 25mm).
- Weight: 480 grammes (both optional).
- Applications: calendar and diary, address and phone book, Lotus 1-2-3 compatible spreadsheet, text processor, communications software.

5 BUILT-IN APPLICATIONS! TO GET YOU ORGANISED!

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Your Portfolio will be invaluable in the office or at home as a powerful pocket calculator. It has a full range of functions, including, factorial,

power and root calculations, all with multi display format and memories.

ADDRESS BOOK & DIALLER

Portfolio has a complete address book facility that allows you to store hundreds of addresses and phone numbers. And, as the touch of a button, you can record any one of them, or search for a specific grouping, such as "All Italian restaurants". And, when you are ready to leave your mobile, hand your Portfolio to your telephone mouthpiece and use its special auto-dial feature to dial the number for you.

TEXT PROCESSOR

The Portfolio's built-in text processor program

includes word wrap, line and column counts, word search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

SPREADSHEET

For the outstanding price, the Portfolio's Lotus 1-2-3 compatible spreadsheet built-in, has 127 columns x 255 rows and resides in Lotus 1-2-3 and dBase II files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible system software.

COMING SOON!

In addition to the excellent software built-in to the Portfolio free of charge (see right), other software and peripheral products, such as the sophisticated Pocket Finance package and semiconductor interfaces are available. And it doesn't stop there. Many manufacturers have recognised the potential of the Portfolio and have already started to design new peripherals and software. Products currently under development include: Serial interface with built-in modem, Apple Macintosh interface, business, utility and programming software plus a range of software and game strategy games. For further free details on the Portfolio range, fill in the coupon below and return it to Silica Systems now.



MEMORY CARDS

Portfolio can store and retrieve data and programs from its on-board, or from small credit card sized memory cards, that fit into its bottom drive. The cards are available in three sizes, 32K, 64K or 128K, as well as carrying a library of files in your choice. The card shop also includes ROM chips, which can store communications software between.



POWER SUPPLY

Portfolio is powered by a single AA battery which can be used as an external unit with normal use, or from the mains using an adaptor. All the peripherals also power from the Portfolio, so can be used as a laptop or plugged in to charge. A battery test warning and battery status display that informs you, in real time when the battery is recharged.



INTERFACES & PERIPHERALS

Portfolio is designed to be used with other computers and as a growing range of peripherals via a variety of pin line, serial and parallel ports. Available modules and peripheral hardware and memory modules are available. You can also add a hard drive to your desktop PC, to enable it to be supported by Portfolio cards.

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PLEASE SEND INFORMATION ON PORTFOLIO

Name: _____ Initials: _____ Surname: _____

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Postcode: _____

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Company Name: _____

Which computer, if any, do you own?

■ In the red corner

I have been reading computer mags for weeks wondering what makes of computer to purchase. I had all but decided on the Atari 1040STE business pack when, when bang, you recommended the Amiga 500 in this week's New Computer Express. Why does the Amiga win by a long head please?

I want a word processor, possibly Protext, a DTP program plus games availability - but majoring on business software for home use.

What makes the Amiga special? I look forward to your reply.
C Day, Oswestry, Middlesex

The Amiga multi-tasks as a matter of course. It has a far superior specification, doesn't rely on the same sound chip as bits and old arcade machines, can do back flips, somersaults, take a coke, fly an aircraft and is generally a more desirable acquisition.

Page Setter II, Protext and all the best games with the best sounds and graphics, more potential to expand... need I say any more? Then again if you've got real cash burning a hole in your pocket you could always buy an Archimedes, (the A3000 Learning Curve pack looks tasty).

■ Boxing clever

After reading of Philip Cole's idea of economical 3-inch disk storage in Express 93, I feel the man could do with some advice.

A second-hand oak wardrobe (£7.45 from any good Age Concern shop) will hold 4,486 (cased) or 8,937 (uncased) disks, and there is often a little drawer in which to store your collection of ill-missing address marks. I have two and I cannot get into the robe, this saving electricity, my eyesight and wear-and-tear.

I think you will agree that, worked out as a price-per-disk storage rate, this represents a significant improvement in value for money on Mr Cole's CD box and, while pedants would note that an oak wardrobe may not be as portable as a CD box, I would respectfully suggest that only a rinky would want to carry 4,486 (cased) or 8,937 (uncased) disks around with him, anyway.

H. Jorgans, Prestwich, Manchester

While we're grateful for your ideas you were in fact puzzled by the post by our research and development team who have solved the portability problem with adjustable racking in a Bedford patchwork. This movable disk box can hold in excess of 30,000 5.25-inch disks or proportionally more of the 3- or 3.5-inch disks.

■ Star spangled blather

As usual, those given to parroting socialist catch phrases in your pages simultaneously reveal a total misunderstanding



of the issue on which they comment.

Steve Casey's assertion that the low price of ST add-ons is due to the weakness of the pound, is wrong on two counts: A, the pound is stronger at the moment than it has been for years, being worth almost two US dollars as I write, and B, a weak pound would of course cause imported items to cost more, not less.

Part of the recently plummeting cost of computers and related items is indeed due to currency movements; the pound sterling having gained value against all other currencies in the last few months, including the dollar, yen, and Deutschmark. By all means 'blame' Mrs Thatcher for this.

John Davidson, Tetbury, Gloucestershire

Just when we thought idle had kept on the plane with his countrymen and flown off to the Gulf, he leaps from the bushes and attacks one of our columns with all the skill and determination of the Fifth Arbans.

Wouldn't it have been more gentlemanly to point out a man's mistake in a private letter instead of a public forum or is that how things are still done in the colonies?

■ Staircase snobbery

I recently upgraded my computer from an Atari ST to an Amiga. Why I did this has no real relevance. However, in just the few months I have owned this machine, I have noticed something remarkable.

Let me explain. When I had a Spectrum, we 'Species' always went out of our way to say that 'our' machine was better than the C64. When I moved up to the Atari ST a few years ago, all Atarians went out of their way to compare it favourably against the Amiga.

Now what I've discovered is that most Amiga people give the Mac a very hard time but hardly ever say anything about the ST. Odd, isn't it? Odd how the 'lesser' computers only slag down those that are just a bit better than their own.

EXPRESS MAIL

Write and tell us what you think about anything under the Sun! Reach us at: **Express Mail, 30 Monmouth Street, Bath BA1 2BW.** Sorry, no personal replies, even with an SAE, as we're too busy writing the magazine. Replies this week by Keith Pomfret.

So, just to add fuel to the fire, I think that we can safely say that Amigas are better than STs, which in turn are better than C64s which in turn are better than Spectrums. Oh yes, just 'cause I own an Amecbe doesn't mean I think it's the best thing since sliced bread. If I had one and a half grand lying around I would buy a second hand bus, but then I'd have to put up with HP and BMW users slagging me off.
S. Widdow, Kings Lynn, Norfolk

But then there are always the Macintosh users who have nothing to aspire to and therefore nothing to slag off, (or so they tell me).

■ Tough of the top

Being an Archimedes owner is tough! You know you've got a great machine but owners of lesser machines won't take you seriously - 'Yab, its a great shame there's no software for it'.

Well, although quantity of commercial is less than 'those' machines, it is rapidly increasing and quality is without question! But I've found a source of excellent software (88800), and many people willing to help in any computer matters, be it programming, DTP, RISC-OS or whatever. The source is of course bulletin boards and the two I use constantly are:
MOHAM - 0272 572382
CRYTON - 0348 879794 or 0348 670030

The range of software, and the sheer number of people willing to help is fantastic! So if you've got an Arc, no software and no friends, buy a modem! The only down side to all this is Mr BT makes a packet, but one eye on the screen the other on the clock and you should be OK. Long live the Arc and long live the ever supportive 885s.
M. Hula, Palspends, Bristol

We couldn't agree more. Assuming that the A3000 and its big brother the Archimedes got the software support that they deserve, it could only be a matter of time before all the ST owners

have saved up and bought Amigas, the Amiga owners have bought A3000s and the Archimedes owners are saying 'Told You So!'

■ White rabbit

Harvey Kessel's idea that the 8-biters are holding up advances in computer technology is complete balderdash. The group of people guilty of this are the fools who believe consoles to be inferior machines unworthy of a mention in New Computer Express!

OK, a console isn't strictly speaking a computer! You can't do most of the things that you'd usually expect to be able to use a computer for, such as word processing, programming, DTP etc.

However, much as we hate to admit it, some of the games consoles can easily outstep even the most advanced of the home computers!

R. Morris, Sutton Coldfield, West Midlands

Point taken. Some of the consoles are indeed fine graphics engines, with the ability to out play dedicated computers but of limited use other than for simple entertainment. ■

NEXT WEEK

SUPER AMIGA
The Amiga 3000 and the new version of Workbench

SHOW STOPPERS
Looking forward to the Computer Entertainment Show

TEE TIME
Another challenger lines up for the PC golf crown

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AMIGA 2000



For the more serious or professional applications user, Commodore have a selection of software titles. The Amiga 2000 is a 16-bit computer with a 10MHz 68000 processor. It has 128K of RAM and can be upgraded to 512K. It has a built-in floppy disk controller and can be upgraded to a hard disk. It has a built-in video controller and can be upgraded to a video card. It has a built-in audio controller and can be upgraded to an audio card. It has a built-in network controller and can be upgraded to a network card.

FLIGHT OF FANTASY

Flight of Fantasy is the very latest Amiga 500 pack from Commodore, featuring 1000000 software releases. It makes the most spectacular use of the Amiga 500's capabilities. It features a built-in video controller and a built-in audio controller. It has a built-in network controller and can be upgraded to a network card.

DELUXE PAINT II
The high quality graphics program that is the standard for other Amiga graphics programs. It has a built-in video controller and a built-in audio controller. It has a built-in network controller and can be upgraded to a network card.

FLIGHT OF FANTASY
A 1000000 software release. It makes the most spectacular use of the Amiga 500's capabilities. It features a built-in video controller and a built-in audio controller. It has a built-in network controller and can be upgraded to a network card.

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